MARKET
DEVELOPMENT
IN THE NIGER DELTA

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BASELINE SURVEY FOR THE AGRICULTURAL INPUTS PILOT IN THE DELTA AND EDO STATES, NIGER DELTA REGION, NIGERIA

CONTACT:
13B ONTARIO CRESCENT
MAITAMA, ABUJA
Tel: +234 818 800 5248
DAISERVICES@DAI.COM

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TABLE OF CONTENTS

LIST OF ABBREVIATIONS AND ACRONYMS

DFID	Department for International Development
FGDs	Focus Group Discussions
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GES	Growth Enhancement Support
GNLD	Golden Neo-Life Diamite
IDIs	In-Depth Interviews
KRs	Knowledge Retailers
MADE	MARKET Development for the Niger Delta
MOP	Muriate of Potash
M4P	Making Markets work for the poor
NPK	Nitrogen, Phosphorus, Potassium
Q	Quarter
STREAM	Strategic Research and Management

List of Tables

List of Figures

EXECUTIVE SUMMARY

Market Development for the Niger Delta (MADE), funded by the Department for International Development (DFID) commissioned this study. The aim of this assignment was to collect both qualitative and quantitative information of target groups (farmers and retailers/sprayers of agricultural inputs) that would be used as baseline data and tool for monitoring and evaluation of programme activities in selected locations in Edo and Delta States. The Strategic Research and Management (STREAM) Insight Nigeria Limited implements data collection and management, data analyses and report writing.

Primary and secondary data were used in the study. Qualitative data was collected through qualitative approach - focus group discussions (FGDs) and in-depth interviews (IDIs). Quantitative data was collected via survey among small scale farmers. desktop research (literature ssearches, publications and past studies) was also done.

This report is a collection of our observations from the responses of the target groups. Our findings offers deep insight into the agricultural inputs sector; what is known about agric-inputs, the source (the current producers/suppliers), the existing packaging materials and sizes, farmers' satisfaction and desire for alternatives, general agricultural practices, sales and income as well as the roles of women in the entire value chain.

Observations from the IDIs, FGDs and surveys are summarized below:

Background Information

Seven retailers and three sprayers were interviewed during the in-depth interviews (IDIs). They include three females and seven males; with age group between 19 years and 48 years. Five of them have below university level education (secondary and primary), and the last two had no formal education. Four of them have operated as retailers or sprayers of agricultural inputs for at least 10 years. Generally, they either sell fertilizers only, agro-chemicals only or a combination of fertilizers, agrochemicals and seeds.

The focus group discussion (FGDs); 1 male and female group in Okada Edo state, 1 male group in Agbor and 1 female group in Kwale were conducted among small scale farmers who generally belong to age group 21 – 65 years, all having minimum of 1 plot and maximum of 10 acres farmland.

- Four hundred farmers interviewed in the survey practice farming in the communities; the selected target communities. Their farmland is between 1 plot to 60 plots (i.e 10 acres). An inclusion criterion of having been farming in the last 3 years preceding the survey was set.
- The mean$\pm$ standard deviation age of the farmers was 47 $\pm$14 years; minimum age was 18 years while maximum age was 82 years.
- Generally within the states, 50% males and 50% females were sampled.
- At least 38% of the farmers have household size of 2 – 5 while at least 40% have household size of 6 – 9.

- More of the females (16%) than males (4%) have no education. More of the males (71%) work full time than the females (60%). Generally, about two-third work full time on their farms.[1]
- With a mean of 4, part time/casual labourers are more engaged than family members; 3. Full time workers are the least engaged. On the general, an average of 7 people is engaged by a farmer.
- On the general, the value of farm implements of 74% of the farmers is not more than N10,000. Nearly all the farmers get their implements from the open market.
- The five most cultivated crops by the farmers are: cassava (83%), maize (63%), yam (57%), plantain (50%) and pepper (41%).
- About two-third of the farmers practice intercropping. Eight out of 10 farmers depend solely on rainfall for the irrigation of their crops.
- About one-third (34%) of the farmers reported having access to improved seeds. However, 23% out of this use it; meaning a non-usage gap of 11%.
- Six out of 10 farmers reported having access to fertilizers though only half of them use fertilizers; meaning a non-usage gap of 29%.
- About two-third (67%) of the farmers have access to agrochemicals/CPP while 53% of them actually use it; meaning a non-usage gap of 14%.

The FGDs reveal that farmers start the process of planting by brushing (clearing the land and burning) in January – February most times, then start planting in April.

Crop Protection Products (CPP)/Agrochemicals

In-depth Interviews (IDIs): The retailers and sprayers know one thing or another about agrochemicals. The most common agrochemicals mentioned and sold were Ridomil, Weedoff, Sharp Shooters, and Best Action. The chemicals are packaged in different sizes in sachets or plastic containers, with the 1 litre pack the most common, though some of the farmers have preferences for other sizes.

Most 1 litre packs cost between N1,050 – N1,500. There is variability in the market price, as a 1 litre pack Sharp shooter is sold for N2,400 by one retailer and N2,500 by another retailer in the same location. Farmers buy/spray agrochemicals almost all year round, depending on crop type. Farmers buy agrochemicals most between March and June.

The retailers and sprayers interviewed in this study said they give advice to farmers, and also maintain a steady feedback system with the farmers meaning that there is a continuous exchange of information.

- Manual clearing of weeds is notably the common method most of the farmers practice.
- Many of the farmers (68%) do not pay more than N20,000 for clearing of weeds from 1 acre of their farm land.
- It is worth noting that 16% of the farmers engage casual labourers that they pay yearly, and not necessarily pay per acre of land worked.

[1] This document was prepared and submitted to MADE by: Strategic Research and Management (STREAM) Insight Limited

- On the general, the average cost paid yearly to labour stands at N83,873.
- Across the two states, Uproot is the most commonly used chemical for clearing of weeds on farms, as 3 out of every 10 farmers who use chemicals use Uproot. The next commonly used is Force Up; 18%.
- Farmers generally buy 2 – 6 litres of chemicals (39%), although some (21%) buy up to a carton.
- Nearly all the farmers (99%) manually prepare their soil for planting.
- Uproot is the most commonly used CPP for all the five major crops that the farmers cultivate. This is followed by Force Up for cassava and maize, while Gamalin takes the second place for yam and plantain.
- Uproot was mostly used for maize (32%), followed by cassava (28%), and then yam (23%). Only 1 out of 10 farmers who plant plantain and pepper, and use agrochemicals use Uproot.
- Almost half of the farmers (47%) who plant pepper do not use any CPP. Three out of 10 farmers who plant cassava, maize and yam do not use any CPP. Four out of 10 farmers who plant plantain do not use any CPP.
- Farmers recommend certain types of CPP to other farmers, and are a major influence on what is used.
- Agric extension workers also seem to make some impact in recommending the CPPs used.
- A good proportion of the farmers do not use any CPP nor get recommendation from anyone: this was mostly observed for pepper (60%) and plantain (54%) crops. Similar is the case for cassava (41%), yam (38%) and maize (32%) crops.
- The effectiveness of the CPPs is the major reason the farmers use them, as reported by practically half of the farmers who use them.
- Most farmers use agrochemicals after planting or at tender stage of the crop. This was reported for the five major crops the farmers plant except plantain, which the farmers mostly reported 'before and after planting' (21%), though closely followed by 'after planting/tender stage' (19%).
- Farmers mostly spray the agrochemicals on their crops. The 2% of farmers who use agrochemicals for yam reported soaking it in water.
- Farmers generally receive advice from other farmers on how CPP is used. Next to other farmers are the retailers, rendering advice to farmers on how CPP is used.
- Farmers mostly store their crops in their house, as confirmed by 46%. Four out of every 10 farmers do not store their crops at all. More of the Delta State farmers (33%) than the Edo State farmers (26%) store their crops.
- Only 30% of the farmers who store their crops control for pests during storage. More males than females control for pests during storage.

Fertilizers

The common types of fertilizers retailers and sprayers know include Nitrogen, Phosphorus, Potassium (NPK) Urea, Muriate of Potash (MOP), GNLD Super Grow, and Malforce (liquid form); with the mostly sold being NPK and Urea. Urea only comes in 50kg and 25kg bags, and GNLD Super Grow in 5 litres. The average price of a 50kg bag of Urea is N6,333.A 25kg bag cost between N2,750 (in Okada) and N4,000 (in Kwale). NPK costs N6,000.

Farmers mostly buy/spray fertilizers around February and May. Normally, farmers buy fertilizers during planting seasons, which may vary all year round depending on the type of crops grown. During rainy season, they buy granular types of products that dissolve easily, while during dry season, they buy Folia (the liquid form). Some farmers request for bigger sizes, such as a 4 litre pack of liquid fertilizer which is currently not available in the market.

- About one-third of the farmers use fertilizers.
- Irrespective of the crop, NPK is the most common fertilizer used by the farmers: for cassava; 48%, maize; 53% and yam; 43%. Second to NPK is gamalin.
- It was mostly other farmers who provided recommendations on which fertilizer to use. The reason for the decision to use fertilizers is mainly because it makes crops grow better. This was reported by 51%, 49% and 43% of the farmers who plant cassava, maize and yam respectively and generally use fertilizers.
- One bag (25 kg or 50kg) is the most commonly used quantity. Nearly half of the farmers confirmed this.
- The farmers mostly use the fertilizers after planting or when the plant is still at a tender stage: 34% and 35% of the farmers reported this for cassava and maize respectively. More than half (56%) confirmed this for yam.
- The most common method of fertilizer application is by digging the ground and burying it, though less than half of the farmers practice this. This method is used for cassava; 44%, maize; 48% and yam; 42% of the time.
- More than two-third of the farmers buy fertilizers from open markets.
- Generally, two-third of the farmers buy fertilizers in large 50Kg bags. About 40% of the farmers pay N4,000 - N5,999 to buy the packs/sizes of fertilizers they use.
- Many of the farmers (44%) buy the fertilizers they use at least twice a year. 'Adding nutrient to the soil' is believed to be the main benefit of fertilizers. This was reported by 75% of the farmers (81% of the males and 69% of the females, 71% of Edo farmers and 80% of the Delta farmers).

Seeds

Only four of the seven retailers interviewed sell seeds, and they only just started. Cocoa and maize seeds are the most commonly sold in all the locations of this study. Seeds are normally contained in sacks; Cocoa is usually in 10kg bags, while maize in 10kg and 20kg bags. Maize seed is also sold in plastic containers (e.g. 4 litre size), some hybrid seeds are sold in 5g bags. Maize seeds measured in plastic containers cost about N500 for the big rubber size. Cocoa is N1,000 per nursery seed, depending on the growth. Seeds are bought every three months, generally between February and May. Cocoa is mostly sold during December and January.

According to the retailers, farmers buy seeds only occasionally, as they still rely on their conventional seeds which are often taken from their stored crops. Also, farmers do not buy hybrid seeds often, perhaps because the concept of hybrid seeds is new in the Nigerian market and little is known about them.

- Many of the farmers (62%) reported that they simply take their seeds from their stored crops. More females (67%) than males (56%) reported this.
- The seeds used by two-third (66%) of the farmers were unsealed from open markets (79%). The farmers mostly (53%) buy the seeds in measurable cups or bowls. This costs less than N1,000, as reported by 41% of the farmers.
- Other farmers have the highest influence in recommending the seeds that the farmers use to plant their maize.

Source of information on use of Good Agricultural Practice (GAP)

Retailers and sprayers have taken upon themselves to give advice to farmers, either when they complain or at the point of purchasing agric-inputs from the retailers. Retailers get their information

through various channels, such as attending agricultural programmes, trainings, from local government agric-extension workers, and agric-input companies, reading of instruction manuals or labels on the containers of the agrochemicals, materials from the internet, and informally from parents or colleagues.

Only six of the ten retailers and sprayers have ever attended formal trainings that would help them give better advice to farmers on agricultural practices. These trainings were organised by either the government (federal, state or local), or agro input companies.

Only five of the ten retailers/sprayers are aware of the Growth Enhancement Support (GES) program, and about all of them are faced with one challenge or another, especially in terms of access to information.

- Nearly all the farmers learnt how to farm from family members or they inherited the practice.
- Farmers also copy what other farmers do or get advice from other farmers. This was reported by 11% of the farmers.
- Few farmers (18%) have received training on how to farm properly.
- A little over half of the farmers (52%) reported that they received training of GAP from family members while agriculture extension workers trained a little over one-third (37%). Family members chiefly trained the women (76%).
- There is a high report of training by agric extension workers in Edo state (64%), though they are yet to greatly penetrate Delta state (20%).
- Training by family members is more reported in Delta State (71%) than Edo State (21%).
- The training farmers had received on GAP focused mostly on farm maintenance (85%), closely followed by weeding (84%) and crop spacing (81%). Fertilizers (60%) and use of crop protection products (71%) were the least areas of concentration of the knowledge shared at the GAP training.
- Farmers in Delta State who have received GAP training have received more knowledge on CPP (84%) and fertilizers (69%) than farmers in Edo state; 50% and 46% on CPP and fertilizers respectively.
- Impressively, most of the farmers (89%) have changed their methods and practices as a result of the knowledge gained from the training they received. Consequently, they (92%) experienced tangible improvement in crop productivity on their farms.
- Very few farmers (13%) have access to agric extension workers. Nearly half (46%) of the few farmers who have access to them reported that they only come once in a year, although about one-third (32%) reported their visit to be twice a year.
- Despite the infrequent visits, over two-third (69%) of the farmers still think the agriculture extension workers are in the best position to teach them GAP, followed by family members (24%).

Sales and Income

The average turnover of the business in a year varies among the retailers, depending on the business size, volume of sales, and brand of products. The recorded yearly average turnover could be N50,000, N180,000, N300,000 or N2,000,000. The average monthly profit from the sale of agrochemicals is between N15,000 to N25,000. For sprayers; the average monthly income is between N12,000 and N35,000.

The volume of pesticides sold in a month also depends on the farming season. For the different retailers, the average litres sold in a month could be as low as between 20 – 25litres, or as much as 80 - 90 litres. In terms of packs of seeds sold in a month; between August and September, which is the main planting season of cocoa, about 500 bags could be sold. During the planting season of maize, the NPK 15:15 is mostly sold. In a month, between 50 and 600 bags of NPK could be sold, compared to between 5 and 20 bags sold in the off season. Similarly, at least 50 bags of Urea could also be sold in the planting season.

The volume of pesticides sprayed in a month varies between one and thirty. An average of fifty containers of herbicides is sprayed in a month and about five bags of 2kg size of fertilizer are sprayed in a month.

Besides the agrochemical business, some of the retailers also have other businesses; such as buying and selling of crops as well as sales of building materials.

About all the retailers actively seek for more customers. This is done either by one-on-one through word of mouth, meeting with cooperatives head or visiting nearby villages with samples of products.

- 4 out of every 10 farmers can each be estimated to make between N100,000 – N249,999 yearly as profit, and about a quarter (26%) make between N50,000 – N99,999 as their yearly profit.
- Many of the farmers (88%) are able to save from their farming business.
- Half of the farmers have other sources of income apart from their farming business.
- Among the farmers who have other sources of income, half of them are traders or do some form of petty businesses. Following this are civil servants -11%, drivers (bikes/cars) - 8% and then plank businesses - 4%
- More of the farmers sell their agricultural products directly to consumers (69%), closely followed by the retailers (61%).
- 9 out of every 10 farmers who do not sell their agricultural products practice subsistence farming.

During the female FGD, the women affirmed the significant roles women play in the sector, though they are outnumbered by men. However, some, especially from Edo State, were of the opinion that men are better casual labourers than women except during harvesting. Giving their own account, women in Edo responded they are satisfied participating in the sector and do not feel intimidated by their male counterparts while those in Delta complained that they have to seek for permission before they can have access to the lands for farming.

1 BACKGROUND

1.1 THE AGRICULTURAL SECTOR IN NIGERIA

Agriculture is the economic mainstay of the majority of households in Nigeria and is a significant sector in Nigeria's economy. The important benefits of the agricultural sector to Nigeria's economy include: the provision of food, contribution to the gross domestic product (GDP), provision of employment, provision of raw materials for agro-allied industries, and generation of foreign earnings labor (until the early 1970s, agricultural exports were the main source of foreign exchange earnings).

The growth rate of the contribution of the agricultural sector to the GDP at 1990 constant basic prices grew from 4.2% in 2002 to 7.2% in 2006. The agricultural sector also employed over 60% of the total labor force in Nigeria in 1999. Though the growth rate in the agricultural sector in Nigeria increased from an average of about 3% in the 1990s to about 7% in mid-2000, the food security/sufficiency status of Nigerians continued to decline.

The dismal performance of the agricultural sector in terms of its contribution to Nigeria's yearly total revenue in the last three decades prompted the government to initiate several agricultural schemes and programs to enhance agricultural productivity in Nigeria, which include the following: the River Basin Development Authorities, the National Accelerated Food Production Project, the Agricultural Development Project, Operation Feed the Nation, the Green Revolution, the National Directorate of Food, Roads and Rural Infrastructure, the Agricultural Credit Guarantee Scheme Fund, the National Special Programme for Food Security, Root and Tuber Expansion Project, and the National Fadama I and II programs.

In the second quarter (Q2) report for 2014 by the National Bureau of Statistics (NBS), while services sector accounted for the largest share of real GDP (53.15%), agriculture constituted the smallest sector with 20.89% of GDP. Among the different components of agriculture, crop production (intermediate consumption: seeds, fertilizer, pesticides, hire of farm implements and simple farm tools that are used up in one farming season) was the largest contributor to real GDP in Q2 of 2014, with 18.55% of total real GDP, though marginally lower by 0.54% points from Q2 2013. The report concluded that 'the sector remains buoyed by government interventions in the sector by the way of the Agricultural Transformation Agenda.'

1.2 INTRODUCTION

MARKET Development for the Niger Delta (MADE) is a four and a half years Department for International Development (DFID) funded development programme that uses a 'making markets work for the poor' (M4P) approach to generate pro-poor and inclusive economic growth in the non-oil sectors of the Niger Delta Region.

The aim is to improve market access for poor producers, increase economic activity and trade and raise incomes of poor men and women. The ultimate goal is to address the causes of poverty with an expected impact of increased incomes for 150,000 poor people, 50% of whom are women in nine states of the Niger Delta.

MADE interventions aim to facilitate change, improved performance and sustainable, pro-poor and inclusive growth in selected markets by: selecting and working in sectors in which men and women are actively engaged; motivating market actors to change their behaviour in a sustainable and catalytic way; and facilitating access to new knowledge, information, services and/or technologies to small/medium-scale farmers and entrepreneurs, men and women.

The design phase of the programme (September 2013 to February 2014) focused on establishing the project in the Niger Delta as well as conducting thematic and technical sector ground research and analysis. This enabled MADE to select and design sectors of interventions aligned to the programme's objectives. The selected sectors are palm oil, aquaculture, smoked fish/fisheries, poultry, and the service sector of agricultural inputs.

1.3 FOCUS OF THIS ASSIGNMENT – AGRICULTURE SECTOR INPUTS

MADE's work in the agricultural inputs market is driven by its pro-poor growth potential. In order to realize this pro-poor growth potential, MADE seeks to facilitate a market driven relationship between agricultural inputs companies and crop farmers to promote the latter's access and proper use of agricultural inputs.

In order to improve the agricultural inputs market for smallholder farmers, MADE proposes to pilot a knowledge driven agro-input retail model. The aim of the knowledge driven agro-input retail model is two-fold; to increase small-holder farmers' uptake of good quality agricultural inputs by embedding farmer education into agro-retailing, and to establish a reliable distribution channel through which agricultural inputs of reliable quality are sold in an affordable manner.

At the core of the retail model are retailers aligned with distributors who will be supported by MADE and the Ag Input company to organise and manage demonstration plots and sell agricultural inputs. The demonstration plots will be designed to both increase farmer's knowledge of good agricultural practices (GAP) and catalyse sales of agricultural inputs (specifically, fertilizer, crop protection products, and seeds).

Upon receiving trainings, each retailer is to set up and manage 5 demo plots on which they will teach farmers GAP - proper use of agricultural inputs (fertilizers, crop protection products, and seeds), field demonstrations on GAP and proper use of agricultural inputs. Each retailer will also conduct 3 market storms to sell inputs.

It is envisaged that outreach per demo plot will be at least 30 farmers, and outreach per market storm will be 50 farmers.

1.4 OVERALL OBJECTIVE

The aim of this assignment is to establish a baseline for key results indicators for the agricultural inputs pilot program in Agbor and Kwale in Delta State and Okada in Edo State; in order to ensure that the impact of the program will be captured during evaluation.

Specifically, this study is expected to collect the baseline data on the target beneficiaries who will be trained and promote the involvement or participation of key stakeholders and indirect beneficiaries from the get-go and enhance buy-in and eventual ownership of the change process that is key to

program success and sustainability. Findings from this baseline study will also be a source of information for decision making and strategic planning.

1.5 PROJECT SCOPE

Implementation of the baseline survey. This phase consists of:

a. A literature review of existing project documentation, including sector analysis carried out by the project team and results chains as well as indicators.
b. Field data collection on the current level of key results indicators and complementary information that guided project implementation and enhances the measurement of project results.

1.6 SPECIFIC TASKS

STREAM Insight undertook the following tasks under this assignment:

1. Obtained information on the demographic profiles - household size and age/gender composition.

2. Obtained baseline data on the socio-economic profile of MADE target farmers and retailers on economic activities which included:
   - crops produced
   - productivity/yields
   - sales
   - income
   - access to and use of growth promoting inputs, products, technologies and services.

3. Obtained information on farm tools and production techniques - land preparation, cropping (intercropping and monocropping) and crop care from sowing to harvest.

4. Conducted literature reviews of existing project documentation, sourced externally; the information from these documents helped to further enrich the survey reports.

2 METHODOLOGY

2.1 STUDY DESIGN

The overall survey design for this baseline study is a cross-sectional approach that adopted a combination of qualitative and quantitative approaches.

Three groups of key stakeholders were identified and involved in this study:

(i) Retailers of agricultural inputs
(ii) Sprayers
(iii) Small-holders farmers

The methods used include:

(i) In-depth interviews (IDIs)
(ii) Focus group discussions (FGDs)
(iii) Survey method
(iv) Literature review

Table 1: Stakeholders in the Study

	Stakeholders	Description	Research Method	
			Quantitative	Qualitative
1	Retailers of agricultural inputs	Retailers of agric inputs		IDI
2	Sprayers	Individuals providing fumigation services to farms, amidst a few others services like selling agrochemicals or hybrid seeds		IDI
3	Small-holder farmers' (target beneficiaries)	Small-holder farmers in the target communities with total farm land not more than 10 acres (maximum of 60 plots)	Face to Face, Pen & Paper Survey (PAPI)	FGDs

2.2 STUDY SITES AND SAMPLE SIZE

Study sites are:

Figure 1: Map of Edo and Delta States

(i) Edo state: Okada and Iguomo (ii) Delta state: Kwale, Agbor and Igbodo

In order to cover a representative sample of the target population, 400 farmer beneficiaries and 10 retailers/sprayers were reached across the two states. In addition, 2 FGDs were conducted in each state.

Table 2: Sample Size Distribution

	States	Stakeholders	Sample Size	
			Quantitative	Qualitative
1	Delta (Kwale , Agbor and Igbodo)	Smallholder farmers'	200	2 FGDs
		Retailers of agricultural inputs	-	4 IDIs
		Sprayer	-	1 IDI
2	Edo (Okada and Iguomo)	Smallholderfarmers'	200	2 FGDs
		Retailers of agricultural inputs	-	3 IDIs
		Sprayer	-	2 IDIs
	Total		**400**	**4 FGDs 10 IDIs**

* Stratification by gender was 50% male : 50% female

Table 3: Number of FDGs Conducted per Location

	States	Stakeholders	FGDs		TOTAL
			Male Farmers	Female Farmers	
1	Delta (Agbor)	Small-holder farmers'	1		**1**
2	Delta (Kwale)			1	**1**
3	Edo (Okada)		1	1	**2**
	TOTAL		**2**	**2**	**4**

Table 4: Number of IDIs Conducted per Location

States	Stakeholders	IDIs		TOTAL
		Retailers	Sprayer	
Delta (Agbor and Kwale)	Retailers and Sprayers	3	2	**5**
Edo (Okada)		4	1	**5**
TOTAL		**7**	**3**	**10**

2.3 QUALITATTIVE APPROACH

Qualitative research techniques were employed in order to promote a participatory research process among the stakeholders and provide an in-depth understanding of the general perception on the subject matter. This included IDIs for the retailers/sprayers and FGDs for the farmers.

In-depth Interviews among Retailers
IDIs were conducted among retailers/sprayers of agricultural inputs between 29th September and 3rd October 2014. The essence of this was to collect information on what they knew about agric-inputs, sales, incomes and their sources of information, formal or informal.

The interviews were conducted at agricultural input markets across the two states (three locations – Okada, Agbor and Kwale). Audio recording of the IDIs was carried out using digital recorders.

Focus Group Discussions among Farmers
FGDs were held among the farmers in order to explore their perception of agriculture practices, including the use of agricultural inputs. These discussions were conducted at a convenient central place (i.e. a hotel venue) and involved selected groups of farmers in the selected communities. They were made to discuss and provide responses to question as a group, rather than as individuals. Audio and video recording of the FGDs sessions was carried out using digital recorders.

Participants of interest were recruited in a purposive manner 2 days ahead of the FGDs, following agreed cooperation and assurance of their interest in participating. Hence, equal gender was ensured during the pre-recruitment amidst other screening parameters; a farmer must be a member in the community, have a total size of farmland not more than 10 acres (up to 60 plots), must have farmed or been farming in the last 3 years, and not less than 18 years of age. In Edo State, 2 FGDs (the female group in the morning and the male group in the afternoon) were conducted on the 30th September,

2014. In Delta state, the male FGD was conducted in Agbor on the 1st October, 2014 while the female FGD was conducted in Kwale on the 3rd October, 2014. The FGDs had different gender groups as well as moderators of the same gender facilitating the groups so as to enhance the participants to discuss freely and openly. Incentives were given to the participants of the group discussions.

2.4 QUANTITATIVE APPROACH

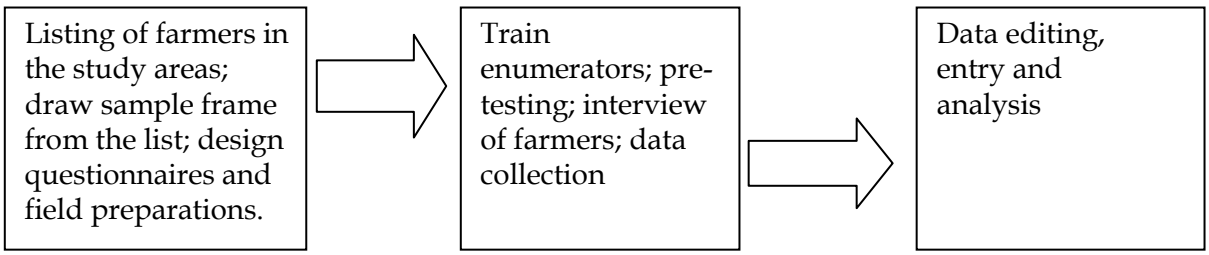
Quantitative data was collected using fully structured questionnaires that were administered face to face, with pen and paper interview (PAPI) approach. The interviews were conducted in households and on farms; this lasted between 29th September and 3rd October 2014. The survey per respondent lasted about 20 – 35 minutes. Key indicators measured include information on types of crops, crop yields, fertilizers, seeds sales, income, and use of agricultural inputs, how they use them, etc. Also, socio-demographic information such as age, gender, etc, from the farmers was collected.

2.5 SAMPLING FRAME AND SAMPLING FOR PRIMARY DATA COLLECTION

A list of farmers in the pilot areas was generated to determine the representative population for the study. These lists formed the sampling frame from which respondents were drawn.

From the sampling frame, the farmers were distributed proportionately according to the number and sizes of communities. Further distributions were done with respect to gender. The selection of farmers ensured a good gender mix, equal split between male and female. A table of random numbers was then used to randomly select final respondent for the surveys. This was done until the sample size for the study was achieved.

Figure 2: Sequence of Activities in the Survey



2.6 SECONDARY DATA

To supplement the primary data collected, secondary data was sourced from existing project documentation, such as related research studies, journals, statistical and publicly available data on agric inputs, as well as policy documents.

2.7 RECRUITMENT AND TRAINING OF FIELD STAFF

Training of field staff was done on the 26th – 28th September, 2014 in Asaba. STREAM Insight used interviewers and supervisors in each state. In addition, the project coordinator/consultant was present in each state during the fieldwork.

More interviewers than needed were recruited and trained for the study. This allowed us to select team members on competence and availed us the opportunity to make easy replacements if a selected team member has to leave the team before the end of the fieldwork.

2.8 QUESTIONAIRE/SURVEY TOOL

STREAM Insight designed structured questionnaire and interview guides (for FGDs and IDIs) that were used to elicit necessary information to meet the objectives of the study. The questionnaire and guides, approved by MADE, were designed in English, and translated into Pidgin English, for easy adaptation at different pilot areas considering the literacy level of the respondents. These were then back-translated to English by different translators to ensure perfect translation. See appendix for the samples of the survey tool.

2.9 LANGUAGE OF INTERVIEWS

Considering that most of the respondents were illiterate, interviews were conducted essentially in Pidgin English and in the local languages. Since all enumerators were hired from the local communities of the survey, language barriers were not a problem.

Upon contact with the beneficiaries, the interviewers/moderators explained the study and its purpose. An affirmative response indicated interview to continue, else the enumerators/moderators thanked the respondent and terminated the interview.

2.10 PILOT SURVEYS

Prior to the commencement of the main survey, the questionnaire was pre-tested on the 27th September, 2014 at Ila community in Delta state. The translated versions of the questionnaire were also piloted.

2.11 QUALITY CONTROL

Throughout the study, strict quality control was implemented. All personnel involved were properly briefed and trained. Moderators and enumerators were well supervised with back-checking and on-spot checking where feasible. The translations were verified by the expert translators and any error observed was duly corrected. Proper back-translations were done to avoid misinterpretation of data. Interview guides were used to during translations.

2.12 ETHICAL CONSIDERATIONS

Ethical consideration was given a vital role in this study. As part of ethical consideration for human subjects, participation in the study was voluntary. The participants were informed about the purpose, procedure and end- benefit of the study before the interviews. Verbal consent was obtained from all respondents before they were allowed to participate in the process. All responses and opinions were accorded due regards.

2.13 ANALYSIS: INDEPTH INTERVIEWS (IDI) AND FOCUS GROUP DISCUSSIONS (FGDs)

Responses were documented using digital recording devices and simple note taking. After completion of interviews, the translations of the information collected was carried out in each location by the interview moderators, assisted by experienced translators. The moderators were engaged as they will be able to recall events and present the conversations with a high level of accuracy. The purpose of the expert translators was to ensure data validity and quality report output. The responses generated from the interviews were analysed using a mixed method approach of content and case study analyses. The content analysis involves identifying similar themes as outlined in the interview guides, to draw a general context from the responses. The general thematic areas for both the IDIs and FGDs include: crop protection products (CPP)/agrochemicals, fertilizers, seeds, source of information on use of Good Agricultural Practice (GAP), sales and income, as well as the roles of the women in the distribution channel of agricultural products. Similar patterns of responses were observed and coded. The translated information was aggregated into Microsoft Excel sheet to aid coding and analysis. Observations were disaggregated by location and groups.

Throughout this report, anonymity of the respondents was maintained while remaining true to the central issues highlighted and the insights learned from their core experiences. Names were represented by letters derived from the true names of the respondents. Key observations were highlighted, either in box or underlined. Direct quotes of respondents were included wherever necessary.

2.14 ETHICAL CONSIDERATIONS

After fieldwork and field validation, questionnaires were submitted and logged in at the data processing department. Records, quota, and specification were checked for validation.
The editing and coding unit first handled the questionnaire, checking for completeness, accuracy and proper operation. This unit checked for accurate compliance with skip patterns. This unit also developed standard coding frame for the open-ended responses in preparation for the data capturing. This list was passed to the data analyst for approval.

A standard data entry template was developed by the data analyst, which was validated and approved by the data manager. All necessary skip patterns were embedded in the program. Data entry was done using IBM SPSS Statistics Software (version 20), with double entry of all records. Both data sets were then compared and the discrepant records were verified from the original questionnaires. The data set was transferred to STATA Statistical software package for

further consistency checks and preparation for analysis. Final analysis was done using IBM SPSS Statistics Software.

2.15 CHALLENGES

The study was conducted in September, around the rainy season; this posed its challenges in terms of data collection and field coordination. The interviewers had to persist to get quality attention from the respondents. Some incentives were also provided to motivate respondents.
Some interviews were interrupted because the respondent had to attend to customers and interview resumed when the moderator was sure the respondent was attentive again. In some instances, the moderator could not continue with the interview and had to sample another respondent. Some respondents were not willing to disclose detailed information on their income. Though some were willing after the moderators patiently persuade them, others still refused.

3 DETAILED FINDINGS

3.1 IN-DEPTH INTERVIEWS (IDIs)

3.1.1 BACKGROUND INFORMATION OF RETAILERS/SPRAYERS

Ten stakeholders – 7 retailers and 3 sprayers - were interviewed during the IDIs. The summary of their background information is presented in Table 5. The average age was 33 years, minimum and maximum age was 19 years and 48 years respectively, with six of them between mid to late 30s. Taking a look at academic qualification, three of them had at least a university level education or its equivalent (Higher National Diploma – HND), five had below university level education (secondary or primary), and the others had no formal education.

Table 5: Socio-demographic Information of Retailer/Sprayer Participants

Location of Interview	Type of Agent	Gender	Summary of Retail Business
Okada	Retailer (GES agent)	Male	Fertilizers and few of agro-chemicals
Okada	Sprayer	Male	Farming & spraying
Okada	Retailer	Male	Agro chemicals especially for cocoa & some weed control
Okada	Retailer	Female	Agro-chemicals
Okada	Retailer	Female	Agro-chemicals retail
Kwale	Retailer	Male	Fertilizers, Seeds, Agro-chemicals
Kwale	Sprayer	Male	Sprayer
Agbor	Sprayer	Male	Sprayer
Kwale	Retailer	Male	Seeds, fertilizer and agro-chemicals
Agbor	Retailer	Female	Fertilizers only

Four of them (2 retailers and 2 sprayers) have been either retailers or sprayers of agricultural inputs for at least ten years (between 10 and 18 years). Only one of them (a sprayer) has been in the agricultural inputs business for two years. One of the sprayers also engages in farming activities. Generally, they either sell fertilizers only; fertilizers and few of agro-chemicals; or a combination of fertilizers, other agrochemicals and seeds.

The fact that seven of the ten sampled respondents have little or no formal education is a cause for concern considering this may be a reflection of the population of retailers in the communities. Some of these retailers may not understand instructions in the directions on the label of the container of chemicals, and the right time of applicationas. As a result of this,

providing poor quality or harmful advice on use of the chemicals is likely. Also, it may pose some challenges especially in understanding and communicating GAP to farmers. Therefore, quality trainings or some level of formal education may assist these retailers in ensuring GAP can be utilized to best advantage.

3.1.2 CROP PROTECTION PRODUCTS (CPP)/AGROCHEMICALS

Generally, the retailers and sprayers interviewed in this study have some level of knowledge of agrochemicals, their use and benefits as significant components in agricultural practices. Generally, they identified these agrochemicals as herbicides, pesticides, fungicides, and insecticides, as well as identified some of the companies that produce/distribute them, chiefly Saro Agrosciences Ltd.

Among others, the common agrochemicals mentioned and sold in all locations include; Ridomil, Weedoff, Uproot, Force Up, Sharp Shooters, and Best Action. The chemicals are packaged in different sizes in sachets or plastic containers, with the 1 litre size being the most common. Although majority of the farmers were pleased with the available pack sizes, there were some notable demands for smaller and larger sizes.

The demand for agrochemical is high in all the locations of study. Similarly, the prices depend on the pack sizes and on the purchase price from the producers. Most 1 litre packs are sold between N1,050 – N1,500. Notably too, there is variability in the market price as a 1 litre size of Sharp Shooter is sold for N2,400, and N2,500 by different retailers in the same location. Farmers buy or spray agrochemicals almost all year round, depending on the type of crop(s) being cultivated, though farmers typically buy agrochemicals most between March and June (planting season).

The retailers and sprayers interviewed in this study indicated that they give advice to the farmers, and many of the farmers put the advice into practice, although some do not. They also maintain a steady feedback system with the farmers such that there is a continuous exchange of information; thereby creating an entry point of intervention in engaging farmers through retailers/sprayers.

3.1.3 Types of (Agrochemical) Input

What type of agrochemicals do you know of?

The retailers and sprayers described the agrochemicals they know. Generally, these chemicals were categorized as herbicides, pesticides, fungicides, and insecticides. These agrochemicals have multiple uses. The uses of agrochemicals identified include storage, killing of pests, treating of mushrooms and tomato plants, etc. According to a retailer (GES agent) in Okada, Ridomil is used *"to protect cocoa at the planting stage, which you mix with water and spray on the cocoa."*

Specifically, some of the agrochemicals identified include: Weedoff, Tari-tari, Best Action, Cyberforce, Bush Extra, Sharp Shooters, Ridomil Master, Force Up, Amino Force, Weed Crusher, Para Force, Perfect Killer, Mani Force, DD Force, Uproot, Slasher, Gubbera, Sniper, Agro Zone, Glycosides, 'Not for sale'.

The most common agrochemicals mentioned by the retailers and sprayers in all locations include; Ridomil, Weedoff, Uproot, Force Up, Sharp Shooters, and Best Action.

"Best action is for cocoa to help production; Sharp Shooter is for insect control; Cyber Force improves cocoa production; Cyber Fit - doesn't make cocoa pod black, while Ridomil Master is for pest control." – Mrs. AM, a female retailer in Okada

Describe the type of agrochemicals you sell/spray

Overall, the types of agrochemicals the retailers sell include: Ridomil, Weedoff, Tari-tari, Best action, Masters, Sniper, Force up, Amino force, Para force, Sunset, Taku, Perfect killer, Uppercut, Solites, combat, charm D-P, Bush fire, up root, Gubona, Gamalin, magic force, DD force, Sharp shooter, Cyber force, Contact 8, Systemic, Dycofordes, Lyders, Cycometrics, Par-aquatics fungicides, 2 Force, Red Force, Glycosides and Paradychlorides.

The most common agrochemicals retailers sell: Ridomil, Weedoff, Force up, Snipers, Action best, Perfect killer, Masters.

The sprayers also gave account of the agrochemicals they spray, viz; Sniper, Weedoff, Tari-tari, and 'Not for sale.' Others are Perfect killer and Uppercut. 'The Tari-tari is to spray cocoa to control pest and for best yield', explained a sprayer in Okada.

Mr. RJ, a sprayer in Agbor, Delta state, provided detailed information on the categories of agrochemicals he sprays. According to him: 'the herbicides include Force up, Bush fire, Uproot, Gubona, Sniper and Slasher, "we have quick/slow actions". Pesticides include: Combat, Sniper, D.D force, No pest, and Atrazines. Fungicides include combat, Termex, Uproot you spray for 2 weeks before planting but others 2 hours.'

Type of agrochemicals farmers buy/spray more.

Generally, Ridomil, and Sharp shooter are the most commonly bought agrochemicals.

In Okada, the agrochemicals farmers buy more are Ridomil and Sharp shooters, others are Best, Gamalin 20, and Paraforce. The commonly sprayed are Tari-tari and 'Not for sale'. In Agbor and Kwale, the agrochemicals farmers buy more are Glycosides, and Atrazine, while the ones they spray more are Up root, and force up.

Figure 3: Samples of 1 litre Agrochemicals in Okada

"Sharp shooters, Best, Gamalin 20, all these agrochemicals... Jubaili Company and Saro Agrosciences Ltd are the two major companies that produce" Mr. JE, a retailer in Okada, Edo state. Others are WACOT West African Agro, Ninigbo Agro seeds Ltd and Sadib agro-tech.

Packaging and level of sales

How well do farmers buy/spray agrochemical?

Generally, the retailers and sprayers rated farmers' demands as 'very well'. According to the retailers, the farmers are buying these chemicals "*well because it is good for cocoa, so they buy always, even during the week*".

Recounting his experience in terms of how well farmers spray agrochemicals, a 35 year old sprayer who also engages in farming activities in Okada, Edo state, said the farmers spray agrochemicals 'very well' "*…it is sprayed every 15 days to make it have good produce.*"

"*They (farmers) buy it very well, they know the use of agrochemicals and they buy it well.*" – Mr. C, Agrochemical dealer in Kwale, Delta state.

"*In this part, farmers spray when they want to start farming, they brush, after that they use manual for weeding.*" – Mr. RJ, a 19 year old sprayer in Agbor, Delta state.

Available pack sizes of agrochemicals and farmers' satisfaction and preferences

The agrochemicals come in different pack sizes, either in sachets, plastic containers or cans. Generally, they come in 1 litre pack, the pesticides in 1/2 litre, same for the fungicides, 1/2 litre; most come in 1 litre packs.

Table 6: Samples of Available Sizes of Agrochemicals

Agrochemical	Pack Sizes
Ridomil	50g (sachet)
Tari-tari	1 Litre, and 2 Litres
DD force	200 ml
Sharp shooters	2 Litres
Best	1/2 litre, 1 litre, & 2 Litres
Not for sale	1 Litre
Weedoff	2 Litres
7 days killer	1 Litre
Force up, perfect killer	1 Litre
Master	1 Litre, and 2 Litres

Generally, farmers are pleased with the available pack sizes. Depending on the type of agrochemical, farmers sometimes demand for smaller or larger sizes, but they are generally pleased with 1 litre sizes; some request for larger pack sizes up to 10 litres.

"Some of them are pleased while some others request for bigger pack sizes which I cannot afford in the market like 10 litres." – JE, retailer in Okada, Edo state.

Current prices farmers buy the agrochemicals at different packs and sizes

The prices of the agrochemicals depend on the pack sizes and on the purchase price from the producers. Also, there is variability in the market price. While a retailer in Okada sold a 1 litre size Sharp shooter for N2,400, another retailer in the same location sold it for N2,500.

Table 7: Prices of Different Agrochemicals

Agrochemical	Size	Price (N)
Ridomil	50g sachet	150
Master	250 ml	500
Perfect killer	1 litre	1,400
Agro sprayer	1 litre	1,500
Cyber force	I litre	1,700
Best	1 litre	1,800
Paraforce	1 litre	1,050
Force up	1 litre	900
Sunset	1 litre	900
Weed crusher	1 litre	1,050
Glycosides	1 litre	1,000
Agro sprayer	4 litres	4,500

Seasonal trends

Time of the year that farmers mostly buy/spray these agrochemicals

Farmers buy or spray agrochemicals almost all year round, depending on the type of crop(s) a farmer cultivates. According to the sprayers, farmers often spray either between February and March or June to August. **Overall, farmers buy agrochemicals most frequently between March to June.**

Farmers buy agrochemicals *"around March to June (for those farmers who cultivate maize, while the cocoa farmers most likely buy agrochemicals in July and August). It depends on the crops a farmer cultivates"* – Retailer, Okada, Delta state.

Use of information
Do you give farmers advice on the importance of agrochemicals? Do farmers follow the advice?

Overall, all the retailers and sprayers interviewed in this study give advice to farmers on the importance of agrochemicals. Seeing this as a responsibility, some do this weekly, while others occasionally. Interestingly, many of the farmers follow the advice, although a few do not. There is a feedback structure between the farmers and retailers, such that there is a continuous exchange of information. These mutual relationships create an entry point of intervention in engaging with the farmers through the retailers/sprayers.

3.1.4 FERTILZERS

In describing the types of fertilizers they know, the retailers and sprayers mentioned Nitrogen, Phosphorus, Potassium (NPK) Urea, Muriate of Potash (MOP), GNLD super grow, Malforce (liquid form), and Excess P and R; with NPK and Urea being the most common and mostly sold. Saro Agrosciences Ltd was identified as the major producer/distributor of fertilizers.

> *"Yes I give farmers advice, but not all of them follow the advice. For those of them that follow, I see it on their harvest and they also come to testify." – Mrs. OA, Retailer, Okada*

The fertilizers are contained in different packs, including 1 litre pack (for liquid types). Urea only comes in 50kg and 25kg bags. Folia in 500ml, 1kg, 2kg, & 5 litres pack sizes and GNLD super grow in 5 litres. Although majority of the farmers are pleased with the available pack sizes, some still demand for other sizes.

The average price of a 50kg bag of Urea is N6,333 (between N5,500 and N7,500), while a 25kg bag is sold between N2,750 (in Okada) and N4,000 (in Kwale). NPK cost N6,000.

Farmers mostly buy/spray fertilizers around February and May. Normally, farmers buy fertilizers during planting seasons, which may vary all year round depending on the type of crops grown. During raining season, they buy a granular type so that it dissolves easily, while during dry season, they buy Folia (the liquid form).

The retailers and sprayers give advice to farmers, and about all of the farmers use this advice. They also maintain a steady relationship with the farmers to facilitate the continuous exchange of information.

What type of fertilizers do you know of?

The retailers and sprayers described what they know about fertilizers, although two of the seven retailers said they do not know so much about fertilizers, and one of them does not sell it. One of the three sprayers said "I don't know about fertilizer because I was told, it softens the soil thereby falling the grown up trees of cocoa." This suggests that there is need for improved awareness on the impact of fertilizer on crops.

These fertilizers are used after brushing or during germination. They are sprayed within the plants, before planting or ringed under plants stems. According to a female retailer from Agbor, "It is the same process of application for all fertilizers". Specifically, some of the fertilizers mentioned include Nitrogen, Phosphorus, and Potassium (NPK) 15:15, NPK 20:20, Urea (powdery form), MOP 12-12-17, Malforce (liquid form), Excess P, Excess R and Plantza. Other types described are Granular (solid form), Folia (liquid form) and Maxi force.

The most common fertilizers mentioned are NPK and Urea.

"I don't know about fertilizer because I was told, it softens the soil thereby falling the grown up trees of cocoa."– Mr. OO, a male sprayer in Okada

Describe the type of fertilizers you sell/spray

Overall, the types of agrochemicals the retailers sell include: NPK 15:15, NPK 20:20, Urea (20-10-10), MOP 12-12-17, Malforce, Excess P, Excess R, Folia-liquid Supergoal (GNLD), Super force, Boost extra, Plant side, Maxi force

"They buy (fertilizer) in small quantity in the area. They are not too exposed to fertilizer in this part." – Retailer, Kwale, Delta

The most common types of fertilizers retailers sell in all locations are NPK (15:15, 20:20) and Urea.

Type of fertilizers farmers buy/spray more and companies that produce them

Generally, NPK 15:15, NPK 20:20, Urea, Golden fertilizers, and Folia are the most commonly bought fertilizers in all the locations of study.

The companies producing/distributing these fertilizers were identified. They include Springfield, Hollam, Golden Fertiliser Company, Saro Agrosciences, WACOT, Duberlin, Syngenta Company, Candel and Jubaili Agrotec.

Saro Agrosciences is the dominant fertilizer producing/distribution company in the locations of study.

Figure 4: A Typical Retailer of Agrochemicals in Agbor

Packaging and level of sales

How often do farmers buy/spray fertilizer?

Generally, there is relatively high demand for fertilizers in all the locations. While others stated that farmers buy fertilizers often, a retailer from Agbor said 'occasionally'. According to a sprayer from Kwale, *"farmers use fertilizers on their crops well. 2-3 weeks after planting the next time is 2 months after the first spray."*

Generally, farmers buy fertilizers during planting seasons, which may vary all year round depending on the type of crops grown. Sometimes between September and October when there is little rainfall, since the fertilizers only need little water to percolate. During the rainy season, they buy granular so that it dissolves easily, while during harmattan or dry season, they buy Folia (the liquid form). The quantity of fertilizers bought also depends on periods in the planting season; 'between January and March (they buy full bags), while late planting (April), they buy few quantities. In summary, **farmers mostly buy/use fertilizers around February and May.**

"January, February and March, they buy full bags (of fertilizers), late planting - April they buy few quantities." Mrs. MC, female, retailer, Agbor

Available pack sizes of fertilizers and farmers' satisfaction and preferences

Fertilizers are contained in specific pack sizes, depending on the form (liquid or granular) and most times in kilograms or litre packs. Urea only comes in 50kg and 25kg bags (and sold in bits to farmers either by weighing or with measurable container). Folia in 500ml, 1kg, 2kg, & 5 litres pack sizes. Maxi force (liquid) comes in 1 litre, while maxi force (powder) in 2kg. Plantzain 1kg, Polyestrain 1 litre, and GNLD super grow in 5 litres.

Generally, farmers are pleased with the available pack sizes of fertilizers, especially that most of them only use a small portion of farming land and prefer to buy a small quantity. However, some farmers request for larger sizes, such as a 4 litre pack of liquid fertilizer which is currently not available in the market.

"Most times politicians give farmers fertilizers for free because they want to win elections. So during those periods the sales are few and the prices reduce as well." – Mrs. MC, a female retailer, Agbor

Current prices farmers buy the agrochemicals at different packs and sizes

The average price of a 50kg bag of Urea is N6,333 (between N5,500 and N7,500), while a 25kg bag is sold between N2,750 (in Okada) and N4,000 (in Kwale). NPK costs N6,000; 1 litre of Maxi force cost between N1,500 and N2,800, while the 4 litres size cost N8,000.

The prices and sales of fertilizers are also being affected by the government's intervention program. The Federal Government's Growth Enhancement Support (GES) scheme apparently bypasses middlemen such as retailers, in distributing subsidised fertilizer to farmers. Through the scheme, the federal and state government subsidised fertilizer by 50 per cent (25% each), so that farmers buy 50kg bag of Urea at N2,750 instead of the market price of between N5,000 and N6,000. Similarly, some of the retailers also think that fertilizer distribution has been compromised through heavy politicization, as politicians often give farmers free fertilizers in order to gain votes during elections. These impinge on the market price of fertilizers and volume of sales, thereby affecting profits.

3.1.5 SEEDS

Three of the seven retailers sampled in this study do not sell hybrid seeds, and so do not give such advice to farmers. The few retailers who sell only just started, while majority of farmers buy occasionally. **Syngenta, Duberlin** was identified as the producer/supplier of hybrid seeds in Kwale.

Cocoa and maize seeds are the most sold in all the locations of study. Other seeds mentioned and or sold are watermelon, cocoa, pawpaw, orange, yam, vegetables, okro, kola, beans, tomato and pepper, cucumber, and pumpkin (local name - ugwu).

Seeds are normally packed in sacks (bags), maize in 10kg and 20kg bags. Maize is also measured and sold with plastic containers (e.g. 4 litre size). Some hybrid seeds are sold in 5g bags.

Maize seeds measured in rubber cost about N500 for the big rubber size. Cocoa is N1,000 per nursery seed, depending on the growth. Seeds are bought every three months, generally between February and May. Cocoa is mostly sold during December and January.

Also, farmers are used to their conventional seeds – which are often collected from their storage (reserved harvest). Therefore, much need to be done in terms of awareness among retailers and farmers, using the former as an entry point to the latter.

Types of seeds

What type of seeds do you know of?

All the retailers and sprayers identified the following seeds; cocoa, maize, watermelon, pawpaw, orange, yam, vegetables, okra, kola, beans, tomato and pepper, cucumber, pumpkin (local name - ugwu) and carrots; with the most common being cocoa and maize**.**

Describe the type of seeds you sell/spray

Five of the ten people interviewed do not sell nor spray seeds. The types of seeds sold are cocoa, maize, tomato and pepper seeds. Others are watermelon, and onion. Farmers do not often buy seeds; rather they take from the ones they have reserved from harvested crops.

"I don't sell because they don't buy seeds here; they only take from their old farms." – Mrs. AM, Retailer, Okada, Edo state

Cocoa and maize seeds are some of the most common seeds retailers sell.

"The hybrid seed is new in Nigerian market and we are starting to introduce to farmers and they are responding well"
- Mr. PO, a retailer in Okada

Packaging and level of sales

How often do farmers buy/spray hybrid seeds and time of the year is it when they do?

To some extent, farmers do not buy hybrid seeds very often, perhaps the idea of using hybrid seeds is yet to be totally embraced by them. Also, it appears farmers are yet to fully grasp the benefits of hybrid seeds to agricultural practices; moreover they are still very much tied to the practice of using their saved seeds.

On the part of the retailers and /or sprayers, there are two scenarios. First, many of them (three of the seven retailers or five of the ten people sampled in this study) do not sell hybrid seeds, and so may not be in the most ideal position to give farmers advice. Secondly, the few retailers who sell hybrid seeds only just started. In addition, only a few farmers buy hybrid seeds frequently, the majority buy it occasionally or 'once in a while'.

Concerning the time of the year farmers mostly buy hybrid seeds; farmers normally buy these seeds during planting season, which may vary all year round depending on the type of crops

grown. Some seeds are bought every three months. Across all location, it is generally between February and May. This is so for many other crops, though up till March for maize. Specifically, cocoa is mostly sold during December and January.

Type of hybrid seeds farmers buy/spray more and companies that produce them

"Cocoa and maize seeds are those farmers mostly buy in Okada". The same observation can be made for farmers in Agbor and Kwale. Others seeds they buy include pepper and tomato, watermelon, okra, and cucumber.

Perhaps there are others, but **Syngenta, Duberlin** was identified as the producer/supplier of hybrid seeds in Kwale. One reason for this may be that since hybrid seed is a new idea in the market, potential agric-inputs companies may still be studying farmers' acceptability of this idea which also is a challenge to their (farmers) conventional ways of getting seeds. These then suggest that the market is open for agric-inputs companies to invest. But for this to be a profitable venture there must be mass awareness on the importance of hybrid seeds and its profitability to farming as a business.

Available pack/ measurement sizes of the seeds, and farmers' satisfaction and preferences

Seeds are contained in specific pack sizes and most times in sacks. Cocoa is usually in 10kg bags, while maize in 10kg and 20kg bags. Maize are also measured and sold with rubber (e.g. 4 litre size), and cocoa in nursery stage too. Watermelon comes in 100g pack, tomatoes in 1g and cucumber in 10g pack. Seeds are also measured in tins (100g size). Some hybrid seeds are sold in 5g bags and others in 1kg.

Generally, farmers are pleased with the available pack sizes of seeds, though some prefer a 2kg size bags. For instance, 'some companies have 3,000 seeds inside a bag, but not sold at the same price with 1,000 container seeds; but some farmers prefer bigger seeds pack at cheaper prices.'

Current prices farmers buy seeds at different packs and sizes

For the maize seeds that are measured in rubber, it is N500 for the big rubber, while the small rubber is N250. Cocoa is N1,000 per nursery seed, depending on the growth. Tomato seed cost between N600-N700, depending on the hybrid. Cucumber pack is N1400-N1,600 depending on the type of the seeds. For seeds measured in tins, a 100g size cost N1,000.

"Yes, I do give them advice because the hybrid seeds are quicker (to grow). For example, most of the maize seeds that we have is two months growth compared to the normal seeds" – Mr. PO, retailer (GES agent),

3.1.6 SOURCES OF INFORMATION ON THE USE OF GOOD AGRICULTURAL PRACTISES (GAP)

Access to and use of information

Farmers often worry about their crops, the quality and quantity of their harvest. For this reason, they need to be informed on the importance and use of agricultural inputs. Consequently, retailers and sprayers have taken upon themselves to give advice to these farmers, either when they complain or while purchasing agric-inputs.

In terms of how frequently they give advice to the farmers; it could be on a daily basis, weekly, monthly, often, or at any time whenever they meet the farmers or when they come to purchase inputs.

Some retailers source their information from instruction manuals or labels on the containers of the agrochemicals, materials from the internet, or informally from parents or co-retailers. Only four of them recieved information from attending agricultural programmes, trainings, from local government agric-extension workers, and events organised by agric-input companies.

In terms of accessing new ways or methods of good agricultural practice, almost all of them depend mostly on previous knowledge, through materials from the internet or from instruction manuals/labels on chemical containers. Only a few of them go for formal trainings or refresher classes.

Only six of the ten retailers and sprayers have ever attended formal trainings that would help them give better advice to farmers on GAP. The trainings were organised by either the government (federal, state or local), or agric-input companies; and focused on the use of agric-inputs (fertilizers and other agrochemicals), agricultural research on yield per hectare (YPH), safety measures, fisheries, poultry, snail rearing, how to spray chemicals, crop protection, use of hybrid seeds and plants, as well as customer relations.

> *"We attend agricultural programmes, trainings; we also work with local government agric-extension workers who enlighten (us). Before we start any GES programmes, we undergo trainings to enable us educate the farmers"*
> – Mr. PO, retailer (GES agent), Okada

Since there is already a platform for agricultural information dissemination through the retailers and sprayers, this should be further strengthened by integrating it as a core component of the MADE development program, with a plan for successive scale-up of targeted knowledge retailers.

Information on Growth Enhancement in State (GES) and challenges

Six (including two females) of the ten retailers and sprayers have been farmers and still actively practice farming. Only five of the ten retailers/sprayers are aware of the GES program. One of this five is a dealer and an agent for GES. About all of them who are aware of GES are faced with one challenges or another, mainly in terms of information and accessibility.

Figure 5: A Typical GES Centre at Okada, Edo State

Are there challenges you are experiencing over GES? If there are, what are these challenges?

"(the challenges are) lack of information and lack of accessibility. On the part of the government, (they are) not giving a better publicity to the farmers, thereby leaving it for us the agro-dealers to do."
– Mr. PO, retailers/GES agent, Okada

"If you are not one of them, as in we are not indigenes of this community, it is very difficult"
– Mr. KN, retailer, Kwale

"Political affairs" – Mr. CA, retailer, Kwale

"They don't come when they need it." – Mr. RJ, retailer, Agbor

3.1.7 SALES AND INCOME

Turnover
Average turnover on the business in a year & monthly profit from retailing business

The average turnover of business in a year varies among the retailers, depending on factors such as business size, volume of sales, and brands of products. For one retailer in Agbor it was N30,000, for another in Kwale it was N150,000. For others in the various locations, the recorded yearly average turnover could be: N50,000; N180,000; N300,000 and N2,000,000. One of the retailers declined to state his turnover.

The average monthly profit is between N15,000 to N25,000. This is mainly from sales of agrochemicals, excluding income from other businesses. For sprayers: the average monthly income is between N12,000 and N35,000.

> *"I visit different villages nearby, with some samples of my products and tell them about my business and also give them my contact and whenever they are in need of these products they locate me."* – Mrs. MC, retailer, Agbor

Volume of products sold per month (pesticides, herbicides, seeds and fertilizers)

The volume of pesticides sold in a month also depends on the farming season. Typically, a retailer sells 2 – 3 cartons or a little more in a month. Sales triple during harvest. For the different retailers, the average litres sold in a month include may be between 20 – 25 litres, or as much as 80 - 90 litres.

In terms of packs of seeds sold in a month; during the planting season, as many as about 500 bags of 20kg of maize (over 1,000 kg) could be sold, otherwise as little as 1 bag in a month. During the periods of August-September, which is the main planting season of cocoa, about 500 bags could be sold or as little as 30 seeds from the cocoa nursery seeds.

On quantity of fertilizers sold in a month: during the planting season of maize, the NPK 15:15 is most commonly sold. In a month, between 50 and 600 bags could be sold. During off season, between 5 and 20 bags could be sold. Similarly, at least 50 bags of Urea could also be sold. For liquid fertilizer, e.g. Malfore, at least 15 - 20 litres could be sold in a month.

The volume of pesticides sprayed in a month varies between one and thirty. An average of fifty containers of herbicides is sprayed in a month. About five bags of 2kg size of fertilizer are sold in a month.

Method of advertisement and engagement in other business

Do you actively try to go out and get more customers? If yes how?

Besides the agrochemical business, some of the retailers have other businesses. This includes buying and selling of crops such as cocoa and plantain and sales of building materials.

About all the retailers actively seek more customers. Their approaches include one-on-one through word of mouth advert; meeting with cooperatives head and local government heads; visiting different nearby villages with some samples of products; as well as use of samples to demonstrate to farmers the benefits of such products.

The sprayers also have other businesses; two of them engage in farming and work as a generator mechanic or loading and off-loading of chemicals for suppliers. Likewise, all the sprayers also actively seek for more customers, one-on-one through word of mouth advert.

3.2 FOCUS GROUP DISCUSSIONS (FGDs)

3.2.1 BACKGROUND INFORMATION OF THE PARTICIPATING FARMERS

Thirty-two stakeholders – 2 male groups and 2 female groups - were group participants during the focus group discussion. The summary of their background information is presented in table 6. They include sixteen males and sixteen females. The minimum number of farming years was 4 years; the maximum was over 20 years. In terms of those who work on their farm, they involve family members and casual labourers. Due to the large sizes of the farms, the farmers use labourers for weeding and clearing. Some have about 8 people working with them on their farm and as low as 1 person. Some hire casual labourers in January, who work all through December when they are paid. Some hire them per time and pay them once each task is completed.

Table 8: Socio-demographic Information of Farmer Participants

Location of interview	**Gender**	**Summary of crops planted**
Okada	Male	Plantain, cassava, yam, cocoa, pineapple, kolanut
Okada	Female	Plantain, cassava, yam, pepper, tomatoes, green, cocoa, vegetables, garden eggs, okra, water melon, cocoyam
Kwale	Female	Plantain, cassava, yam, pepper, tomatoes, maize, vegetables, pineapples, palm
Agbor	Male	Maize, okra, tomatoes, cassava, palm trees

Many of the farmers are also transporters, traders, work with the local Government council while others do not have any other job apart from farming. Many of the farmers were born in the communities where they farm. They brush (clear) their farmland mostly in January - February, and then start planting in April. They clear with cutlasses and then burn. After which they buy the seeds from the market and then till the ground/soil (nurse). Hoes, cutlasses, diggers, trucks, wheel barrows, shovels, go-to-hell, basins, and spray pumps amongst many are some of their farm implements. Farming seasons according to the farmers depend on the crop the farmer plants. Tomatoes and maize they said last from 3 to 4 months, okra is 4 months, yam; 6 months, cassava and cash crops like pineapples, palm trees etc is minimum of one year which is just one season.

The fact that almost all of the participants make use of manual tools is a cause for worry. Unfortunately, this has been the trend in a while especially among the female farmers. Quality trainings are therefore necessary for these farmers (especially females) in ensuring GAP can be utilized to best advantage.

3.2.2 CROP PROTECTION PRODUCTS (CPP)/AGROCHEMICALS

Unlike the male farmers, many of the females could not identify the names of agrochemicals nor the companies that produce/distribute them.

The most common agrochemicals mentioned and sold in all locations include Ridomil, Weedoff, and Gamalin. Farmers buy in cartons or container depending on financial ability at the time. The farmers are pleased with the available pack size, though they have preference for alternative sizes in addition to the available ones.

Farmers buy or spray agrochemicals almost all year round, depending on the type of crop(s) being cultivated, though farmers spray more at the beginning of planting then also towards the time for harvest so as to protect the crops from weeds and ants.

The farmers who participated in this study indicated that they get advice from the agricultural input retailers and family members; many of the farmers use this advice, although some do not.

Types of (agrochemical) inputs

What type of agrochemicals do you know of?

The farmers described the agrochemicals they know. Generally, these chemicals were categorized as herbicides, pesticides, fungicides, and insecticides. These agrochemicals, they say have different functions. These include its use to help clear weeds, storage killing of pests, treating of cocoa, etc. According to a farmer in Okada, *I spray cocoa with Ridomil and Gamalin."* Specifically, some of the agrochemicals identified include Ridomil, weed off, Gamalin, sanitors 2000, force up, bush fire, selection, action forty, up root. Stressing the fact that they only use the ones they know of.

The most common agrochemicals mentioned by the farmers in all locations include; Ridomil and force up.

Type of agrochemicals farmers buy/spray more.

According to the farmers, they use agrochemicals two times - before planting and towards the time for harvest. Overall, the types of agrochemicals the farmers use include: Ridomil, weed off, Gamalin, sanitors 2000, force up, bush fire, selection, action forty, up root.
The most common agrochemicals used by the farmers in all locations include; Ridomil and force up.
'I use it when the flower comes out against ants; I also use it after two weeks so that the leaves will produce well, then when it has seed I also spray (for watermelon)' a female farmer in Okada.

The female farmers use agrochemicals when brushing (clearing the land) and during weeding. Generally, Ridomil and force up are the most commonly bought and used agrochemicals.

In Okada, the agrochemicals farmers buy are herbicides like weed off, Gamalin, sanitors 2000. The commonly used are Ridomil and Gamalin. In Agbor and Kwale, the agrochemicals farmers

buy and use more are force up, bush fire while they use 'selection' for maize and pineapple more in Agbor.

What they use these agrochemicals for

Describing what they use these agrochemicals for, a female farmer in Okada, Edo state, said she uses it after brushing when the weed is out a little, to suppress the weed. Another said, *"I use it to kill weeds so that my crops will have good fruits."* The Agbor farmers said that the growth of their crops determines when to spray so the agrochemical does not kill them when they are young.

Figure 5: Participants at the female FGDs in Okada

Packaging and level of sales

Available pack sizes of these agrochemicals and farmers' satisfaction and preferences

The agrochemicals come in different pack sizes, either in sachets or cans. Generally, the herbicides come in 1 litre packs, the pesticides in 1/2 litre packs. Most come in 1 litre packs. Some of the agrochemicals also come in 5 litres, 10 litres, and some 20 litres packs.

> *"We use pesticides (force up and bushfire) to control the pests and weeds especially the weeds in our farms."* –a female farmer in Kwale

Generally, farmers are pleased with the available pack sizes. They are pleased that they are readily available in the market and they are generally pleased with 1 litre sizes. Some of the Agbor farmers prefer a cheaper one in a larger pack size.

"We will like to have bigger pack sizes if they come cheap." – Male farmer in Agbor, Delta state.

Current prices farmers buy the agrochemicals at different packs and sizes

The prices of the agrochemicals vary as it depends on the type, pack sizes and market price. While a farmer in Kwale and Agbor buys a carton of bush fire (12 cans - 1 litre each) at N12,000, another farmer in Okada buys a can of Endocell/Endoforcefor N4,000 and Sanitor 2000 for N2,000.

The prevailing prices for specific pack size are identified as follows: Ridomil is N150 for a 50g sachet. Bushfire - 1litre N1,000; Sanitor 2000 - I litre N2,000 while Endocell/Endo force is sold for N4,000.

The quantities of agrochemicals farmers buy also depend on their financial ability at the time. Some buy as much as 100 cans, while some buy different types and mix them together for use.

Seasonal trends

Time of the year that farmers mostly buy/spray these agrochemicals

Farmers buy or spray agrochemicals almost all year round, depending on the type of crop(s) a farmer cultivates. According to the farmers, they often spray before planting (March – April) and towards the time for harvest (August and September).

Accessibility to agrochemicals

On the over all, the farmers said accessibility has been good as the agrochemical is readily available in the market. *'We get these pesticides easily from the market'*- a female farmer in Kwale, Delta state

Figure 6: Male FGD Participants at Okada

Source of information

Where do farmers get advice on the importance of agrochemicals?
Generally, many of the farmers get advice from people around though a few have attended trainings where they were given advice on the importance of agrochemicals. The Agbor farmers said they get advice on the importance of agrochemicals from neighbours and some of their friends working in the ministry of agriculture. While the female farmers in Okada, get information from family (my husband), the label on the container, and neighbours, the male farmers get information from family members, friends or co-farmers, agricultural textbooks, and from the labels on containers of chemicals, as well as from cooperatives. The Kwale farmers get advice from the retailers from the open market from whom they buy agrochemicals.

3.2.3 FERTILZERS

Some of the fertilizers mentioned include; Tokey, Potassium (NPK) Urea, Forte, Santire; with the most common and mostly used being the NPK and Urea. Though many could not remember the names of the companies that produce/distribute fertilizers, and those who had an idea said NPK is from a German company and Forte is from Urea.

> *"I get advice from agricultural textbooks, instruction from labels, family, and cooperative." – Male farmer, Okada*

The fertilizers are contained in different packs. Urea only comes in 50kg and 25kg bags. Forte comes in 1kg, 2kg, 5kg, 10kg pack sizes, while Santire comes in 50kg. Although majority of the farmers are pleased with the available pack sizes, some still demand for other sizes. Some buy from the open market while some get theirs from the Ministry of Agriculture at a subsidized rate.

The price of a carton is N10,000, sometimes N9,500 and at other times N11,000. The price for a 50kg bag of fertilizer is N4, 500 (in Okada).

Farmers mostly buy fertilizers during planting seasons (February – April), which may vary all year round depending on the type of crops grown. It is applied after planting like once in a year for palm trees and maize. They prefer to apply the granular fertilizer during raining season, because it dissolves easily, though during dry season, they mix with water.

Types of fertilizers

What type of fertilizers do you know of?

Many of the farmers know the benefits of fertilizers which they described as what helps to increase the yield of the crops. They said it enhances growth, because it is necessary when there is continuous farming on a part of farmland. They further explained that fertilizers helps crops produce well, look fresh and healthy although not all of them use it and those who use it do not use it on all their crops. Those who do not use fertilizers explained that their farms are fertile and do not need fertilizers while others say they do not know how to apply the fertilizers.

One of the farmers said *"In this community, Kwale we don't use fertilizers because we don't know how to apply them well, people around here don't like fertilizer products."* This suggests that there is need for improved awareness on the impact and application of fertilizer on crops.

These fertilizers are used during planting season (February – April), and preferably in rainy season as many of them buy the granular fertilizers and the rain helps it to dissolve easily. According to the farmers, fertilizers can be applied on any crop but many of the farmers use fertilizers on crops like palm tree, maize etc.
Some buy from the open market while others get theirs from the ministry of Agriculture at a subsidized rate.

Figure 6: Female FGD Participants at Okada

Specifically, some of the fertilizers mentioned: Nitrogen, Phosphorus, and Potassium (NPK) 15:15, NPK 20:20, Urea (powdery form), Tokey, Forte, and Santire. Many of the farmers did not remember the names of the companies.

> *"I used fertilizers on my pineapple. Instead of growing, it destroyed the plants. So I don't use it again. I don't really have idea on how to apply them."* –Female farmer, Kwale

The most common fertilizers mentioned are NPK, and Forte.

"In this community, Kwale we don't use fertilizers because we don't know how to apply them well, people around here don't like fertilizer products."–a female farmer in Kwale

Type of fertilizers farmers buy/spray more and companies produce them

Generally, NPK 15:15, NPK 20:20, are the most commonly bought fertilizers in all the locations of study.

Packaging and level of sales

How often do farmers buy/spray agrochemical?

Generally, there is relatively low demand for fertilizers in all the locations. While others stated that their land is fertile and don't need fertilizers, some farmers only use it on selected crops. Some farmers complained of how improper usage destroyed their crops hence the reason for not using it.

Generally, farmers buy fertilizers during planting seasons, which may vary all year round depending on the type of crops grown. According to a farmer from Agbor, *"it is applied after planting like once in a year for palm tree, maize etc."* The quantity of fertilizers bought also depends on periods in the planting season; between February and March (they buy full bags), while late

planting (April), they buy few quantities. In summary, farmers mostly buy fertilizers around February and April.

"February/March, April that is our planting season." –Female farmer, Okada

The quantity used is determined largely by the size of the farmland. The quantities used vary from 2kg –75kg and some use as much as 15 bags of the 50kg pack size.

Available pack sizes of fertilizers and farmers' satisfaction and preferences

Fertilizers are contained in specific pack sizes, depending on the type and most times in kilograms or litre packs. Forte is made up of 1kg, 2kg, 5kg, and 10kg pack sizes. Some farmers buy in bits by either weighing or with measurable container.

Generally, farmers are pleased with the available pack sizes of fertilizers, especially because most of them only use a small quantity and only on selected crops. Also, those that desire smaller sizes can buy portions. However, some farmers request for cheaper larger sizes of good quality fertilizers, which is not available in the market.

Current prices farmers buy the fertilizers at different packs and sizes

The price of a carton - N10,000, sometimes N9,500 and at other times N11,000. The price for a 50kg bag of fertilizer is N4, 500 (in Okada). In Agbor, it also varies; 2kg - N500, 50kg - N5,500/N5,600.

The government intervention program also affects the prices and sale of fertilizers. The distribution of subsidised fertilizer to farmers has helped to improve their use of it. Through the intervention program, the federal and state government subsidizes fertilizer by 50 per cent (25% each) so that farmers buy a 50kg bag of Urea at N2,750 instead of the market price of between N5,000 and N6,000.

Accessibility to fertilizers

Many of the farmers said accessibility has not been good as some of the fertilizers are not readily available in the open market but rather at the ministry of agriculture. Some have to travel to other communities to buy because it is cheaper there. *'It is accessible but I buy in Benin because it is cheaper there'*- a female farmer in Okada, Edo state.

Source of information

Where do farmers get advice on the importance of agrochemicals?

> *"We are ready to use hybrid seed, only if we get people who will train us on how to use, and store them, without any problems."* – Farmer, Kwale, Edo state

Many of the farmers get advice from people around though a few have attended training where they were given advice on the importance of fertilizer and how it can be applied. The Kwale farmers do not really get advice on the usage of fertilizer while the Agbor farmers get information from family and friends. The female farmers in Okada, Edo State gets information from their husbands, while the male farmers gets information from family member (father), and trainings. Interestingly, many of the farmers follow this advice.

3.2.4 SEEDS

Many of the farmers are not aware of hybrid seeds. They plant seeds they have reserved from their last harvest or buy from other farmers as well as from the open market. Farmers are interested in knowing more about hybrid seeds. In Agbor, tomato seed is sold in matchboxes and empty milk container. Farmers buy maize seeds from the government, while cassava stems are collected from other farmers and family members. According to the farmers, the government provides seeds as an incentive for purchasing herbicides, other however buy from open market.

> *"I got advice from the IITA training I attended." – Male farmer, Okada*

Types of seed

What type of seeds do you know of?

Many of the farmers know the benefits of hybrid seeds. As one farmer described it "*Yes, I use treated (hybrid) seeds for any crop I want to plant like beans, watermelon, it is different from untreated seeds (normal seeds). "I have heard of it, it is different from local and it is bigger.*" Some of those who do not use explained that they plant from the seeds they have reserved from the last harvest or buy from other farmers as well as from the open market while others said they want to know how it works.

These seeds are used more during planting season (February – April). Some buy from open market while some get theirs from the ministry of Agriculture at a subsidized rate.

"As for cassava, it is from friends and for the maize the government gives them after buying herbicides, while some buy from open market but in cups like N50 a cup." – Farmer, Okada, Edo state

Packaging and level of sales

How often do farmers buy/spray seeds?

Generally, there is relatively low demand for hybrid seeds in all the locations. While others stated that they are not aware of it others are saying they are aware but not seen it before. Some farmers only use the reserved seeds from their harvested crops. In summary, **farmers mostly use the reserved seeds from their last harvested crops.**

"After harvesting, I reserve my seeds then during planting season I bring out the reserved seeds and replant." –Female farmer, Okada

Accessibility to seeds and source of information

On the over all, many of the farmers said there is little or no accessibility to hybrid seeds as they are not readily available in the open market but rather at the Ministry of Agriculture. *'No they don't sell. I have not seen it.'*- a female farmer in Okada, Edo state.

A female farmer (in Okada) who knows and uses hybrid seed gets advice from her husband, in-laws and friends.

3.2.5 THE USE OF GOOD AGRICULTURAL PRACTISES (GAP)

The farmers described good agricultural practice as treatment of farmlands, using treated seeds for planting likewise applying chemicals on a large farmland to kill grass (weed). They get some information through the retailers from whom they buy agrochemicals. However, many of the farmers have never had any agricultural training, so they are still practicing the old methods of farming.

There are some who have had some level of agricultural trainings under UNDP and IITA. They were taught plantain farming; with demonstration on how to root it, apply fertilizer and spacing.

When there are new ways or methods of agricultural practice, farmers learn from retailers, family and co-farmers.

What farmers know of GAP?

Many of the farmers know one thing or the other about the process and benefits of GAP which they described as: "*It involves the proper way of planting how they plant and how inter-cropping is managed*" Male farmer in Agbor. "*Treatment of farmlands, using treated seeds for planting.*" – Female farmer in Okada. However, there are still some farmers who do not understand GAP. *"We don't know."* – Male farmer in Okada.

> *"We have never had any agricultural training, so we are still practicing the old methods of farming."–a female farmer in Kwale*

"It involves the proper way of planting how they plant and how inter-cropping is managed." – Farmer, Agbor, Delta state

There are some who have had agricultural trainings under UNDP and IITA.

"Plantain farming, they showed us how to root it, apply fertilizer and spacing."–a male farmer in Okada

> *"Yes our gender is a problem because we are not allowed the right ownership even when it is a family land. We must get permission from the Elders in the families and Elders in the communities and then pay the price."– female* farmer in Kwale

Many others (the farmers) never had any formal agricultural training, so they are still practicing the old methods of farming. One of the farmers in Okada described their access to GAP has been able to use agrochemicals. He said "we a*pply chemicals on a large farmland to kill grass (weed).*" This suggests that there is need for training on GAP for the farmers.
They learn from radio and television as well as from family and from observations. When there are new ways or methods of agricultural practice, farmers learn from retailers, family and co-farmers.

3.2.6 SALES AND INCOME

The farmers said what they sell is enough to cover their expenses. Although some could not give an estimate, many of the farmers make profit between N50,000 – N500,000. Besides farming, some of the farmers engage in other businesses such as transport, trade, or work with the local government council.

What farmers are saying about their sales and income?

Some of the farmers could not estimate their sales and income but for those in Agbor who could estimate had these to say: *Though it is not quite encouraging, N50,000 for yam, cassava N70,000, palm N80,000 while somebody said that average turnover when properly calculated will be up to N600,000.*" In summary, farmers mostly make between N50,000 – N500,000 after all expenses. However, some claim they do not make any profit, *"We don't have any profits or sales"* (Female Farmers, Kwale, Delta state). Also, there are some who have other source of income besides being a farmer, such as 'transporter, trader, work with the local government council'–farmers in Okada.

3.2.7 WOMEN PERSPECTIVES

The female farmers said that their major role is helping to transport products from the farm and ensure it gets to the market. They also participate in harvesting. Some of the farmers said they do not have issue of farm ownership while others claim that they need to get approval from village head and elders to get permission for use even on their inherited lands.

Female farmers' perspectives about their roles in the value chain

Some of the female farmers in Okada do not have issue of farm ownership, as one woman declared *"Women are free to own farmlands*, Okada, Edo state.

In contrast, women in Kwale claim that they need to get approval from village head and elders to get permission for use even on their inherited lands. "*Yes, we must go to Elders in the community, pay money for us to use our lands for farming.*" - Female farmer in Kwale. The female farmers said that their role majorly is helping to transport products from the farm and ensure it gets to the market as well as harvesting.

3.3 QUANTITATIVE SURVEYS AMONG FARMERS

3.3.1 BACKGROUND INFORMATION AND FARMERS PROFILE

All the farmers (400) interviewed practice farming in the communities; the selected target communities. Their farmland is between 1 plot to 60 plots (i.e 10 acres). An inclusion criterion of having been farming in the last 3 years preceding the survey was set.
Their age distribution is shown below:

Table 9: Age Distribution of Farmers

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100 %	200	100 %
18 - 21 years	6	2%	4	2%	2	1%	2	1%	4	2%
22 - 34 years	74	19%	37	19%	37	19%	40	20%	34	17%
35 - 44 years	112	28%	47	24%	65	33%	60	30%	52	26%
45 - 54 years	93	23%	49	25%	44	22%	50	25%	43	22%
55 - 65 years	72	18%	37	19%	35	18%	33	17%	39	20%
Above 65 years	43	11%	26	13%	17	9%	15	8%	28	14%

- The mean$\pm$ S.D age of the farmers was 47 $\pm$14 years; minimum age was 18 years while maximum age was 82 years.
- About half of the farmers belong to the age group 35 - 54 years. Among the females, 55% of them are within this (35 - 54 years) age group. Same trend was observed in Edo state; 55% of the farmers were 35 – 54 years.

Table 10: Gender Distribution, Marital Status, Household Size and Educational Status of Famers

Gender	Total	Gender		State	
		Male	Female	Edo	Delta

	Total	400	100%	200	100%	200	100%	200	100%	200	100%
	Male	200	50%	200	100%	0	0%	100	50%	100	50%
	Female	200	50%	0	0%	200	100%	100	50%	100	50%
Marital Status											
	Total	400	100%	200	100%	200	100%	200	100%	200	100%
	Single	25	6%	18	9%	7	4%	8	4%	17	9%
	Married	335	84%	176	88%	159	80%	170	85%	165	83%
	Widow/widower	32	8%	4	2%	28	14%	18	9%	14	7%
	Divorced/separated	5	1%	1	1%	4	2%	2	1%	3	2%
	Refused	3	1%	1	1%	2	1%	2	1%	1	1%
Household Size											
	Total	400	100%	200	100%	200	100%	200	100%	200	100%
	1	20	5%	11	6%	9	5%	9	5%	11	6%
	2 – 5	159	40%	76	38%	83	42%	83	42%	76	38%
	6 – 9	169	42%	90	45%	79	40%	80	40%	89	45%
	10 and above	35	9%	17	9%	18	9%	19	10%	16	8%
	Refused	17	4%	6	3%	11	6%	9	5%	8	4%
Highest Educational Attainment											
	Total	400	100%	200	100%	200	100%	200	100%	200	100%
	None	40	10%	8	4%	32	16%	28	14%	12	6%
	Primary	146	37%	66	33%	80	40%	85	43%	61	31%
	Secondary	174	44%	102	51%	72	36%	72	36%	102	51%
	Tertiary	40	10%	24	12%	16	8%	15	8%	25	13%

- Within and across the two states, half of the farmers sampled are males and half; females.
- At least 80% of the farmers across the gender groups and the locations are married.
- At least 38% of farmers have household size of 2 – 5 while at least 40% have household size of 6 – 9.
- More of the females (16%) than males (4%) have no education. Farmers in Delta state have more education (64%) than farmers in Edo state (44%).

3.3.2 GENERAL ISSUES

Table 11: Working Status on the Farm.

Working Status on the farmer	**Total**		**Gender**				**State**			
			Male		**Female**		**Edo**		**Delta**	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Full time	261	65%	141	71%	120	60%	131	66%	130	65%
Part time	139	35%	59	30%	80	40%	69	35%	70	35%
Engagement of workers/labourers/family members										
Total	400	100%	200	100%	200	100%	200	100%	200	100%

	Engage people on farm	355	89%	183	92%	172	86%	182	91%	173	87%
	Do not engage people on farm	45	11%	17	9%	28	14%	18	9%	27	14%
Number of workers/labourers/family members											
	Total	355	100%	183	100%	172	100%	182	100%	173	100%
	0	13	4%	8	4%	5	3%	2	1%	11	6%
	1 – 5	159	45%	69	38%	90	52%	106	58%	53	31%
	6 – 10	125	35%	73	40%	52	30%	59	32%	66	38%
	11 – 15	36	10%	21	12%	15	9%	9	5%	27	16%
	Above 15	22	6%	12	7%	10	6%	6	3%	16	9%

- More of the males (71%) work full time than the females (60%). Generally, about two-thirds work full time on their farms irrespective of their locations.
- 92% of the male farmers reported engaging people on their farms whereas 86% of the females reported so. 91% of the Edo farmers (91%) reported engaging people on their farms whereas 87% of the farmers in Delta reported so.
- Generally, 80% of the farmers engage 1 – 10 people to work on their farms. 90% of the Edo farmers engage 1 – 10 people to work on their farms. This is quite higher than what in Delta; 69%.

Figure 7: Number of workers/labourer/family members that famers engage

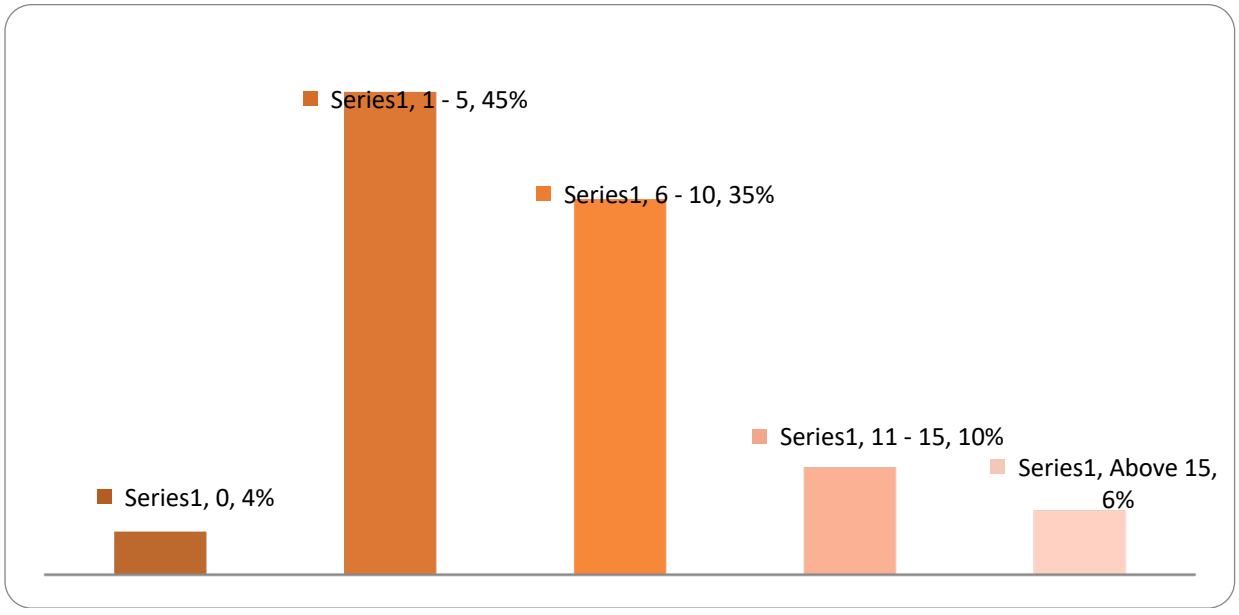


Table 12: Mean number of family members, part-time/casual labourers and full-time workers engaged by farmers

	N	Mean	Minimum	Maximum
Family members	355	3	0	14
Part time/casual labourers	355	4	0	45
Full time workers	355	1	0	10
Total	**355**	**7**	**0**	**46**

With a mean of 4, part time/casual labourers are more engaged than family members; 3. Full time workers are the least engaged. On the general, an average of 7 people is engaged.

Table 13: Mean number of male and female workers engaged by farmers

	N	Mean	Minimum	Maximum
Male	355	5	0	14
Female	355	2	0	13
Total	**355**	**7**	**0**	**46**

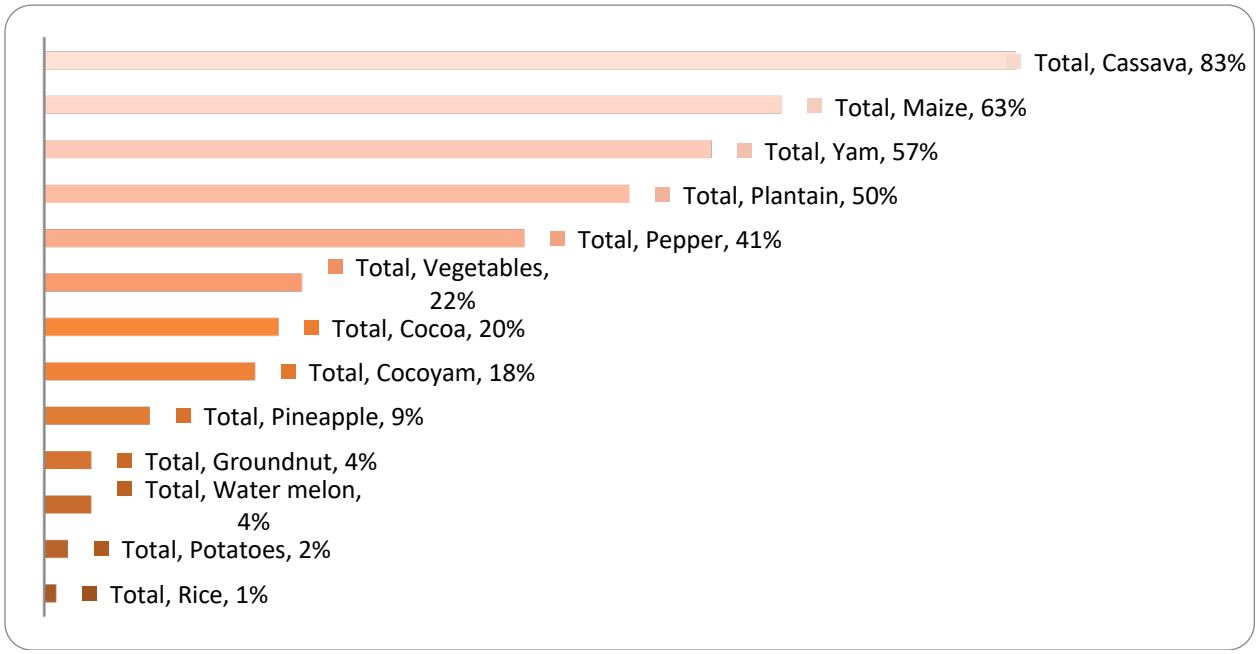
More males (mean = 5) are engaged to work on the farm than females (mean = 2).

Table 14: Total values of farm implements and where farmers get the implements from

Total Value of Farm Implements in N	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Less than 5,000	157	39%	55	28%	102	51%	90	45%	67	34%
5,001 - 10,000	138	35%	72	36%	66	33%	68	34%	70	35%
10,001 - 20,000	74	19%	50	25%	24	12%	31	16%	43	22%
20,001 - 30,000	1	0%	1	1%	0	0%	1	1%	0	0%
30,001 and above	30	8%	22	11%	8	4%	10	5%	20	10%
Where Farmers get Implement from										
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Open market	394	99%	197	99%	197	99%	195	98%	199	99%
Borrow/lease from other farmers	1	0%	1	1%	0	0%	0	0%	1	1%
Government institutions	0	0%	0	0%	0	0%	0	0%	0	0%
Others	5	1%	2	1%	3	2%	5	3%	0	0%

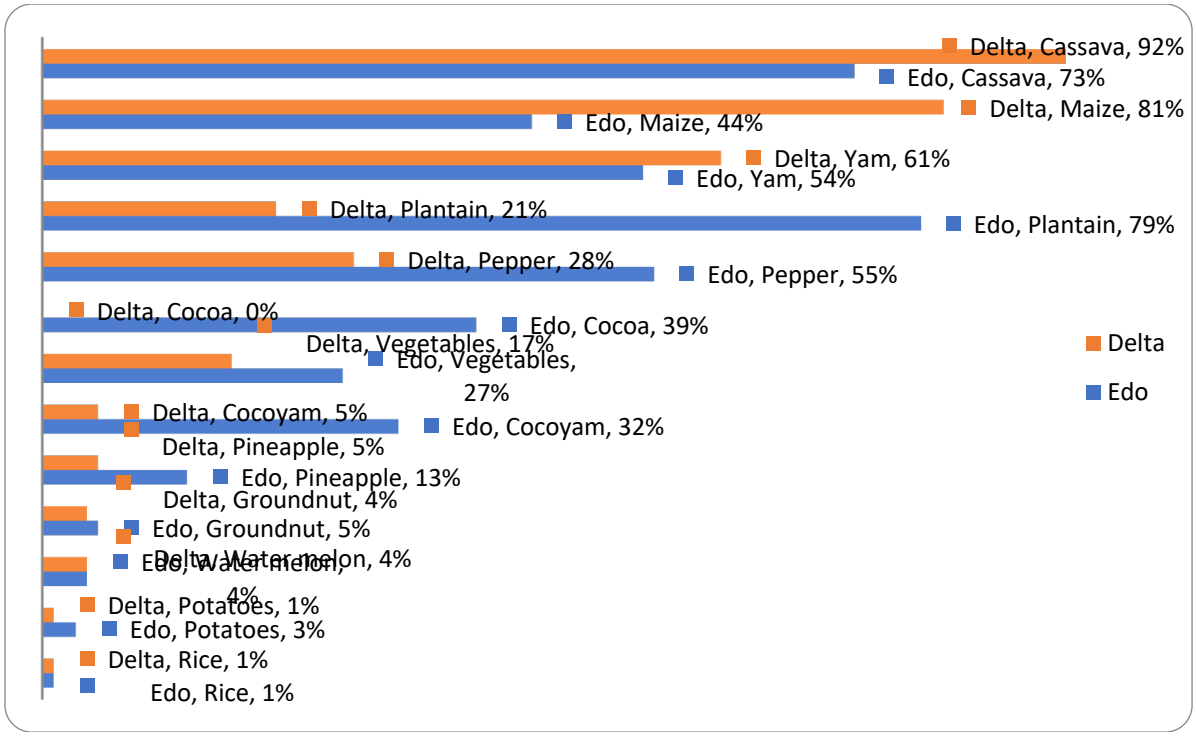
On the general, the worth of farm implement of 74% of the farmers is not more than N 10,000. Nearly all the farmers get their implement from open market.

Figure 8: Crops farmers cultivate



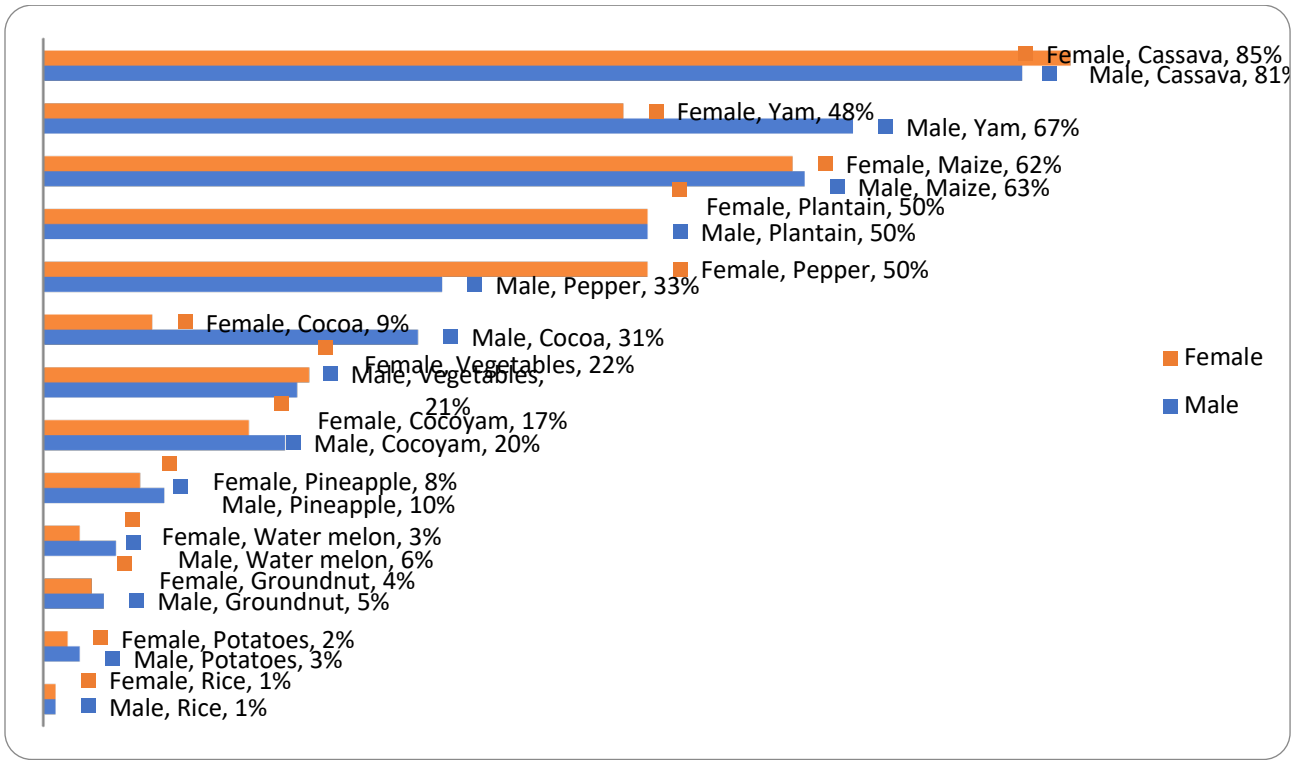
The five most cultivated crops by the farmers are: cassava (83%), maize (63%), yam (57%), plantain (50%) and pepper (41%).

Figure 9: Crops farmers cultivate in Edo and Delta



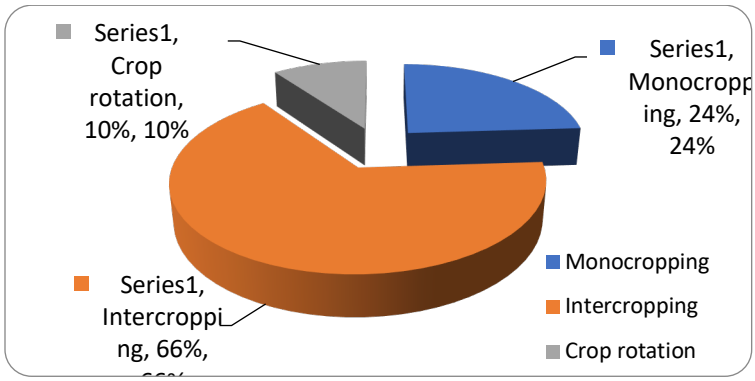
Cassava is cultivated more in Delta state (92%) than Edo state (73%). Also, maize is more planted in Delta state (81%) than Edo state (44%), likewise yam (Delta; 61% and Edo; 54%). Plantain and Pepper are distinctly more cultivated in Edo (79%, 55%) than Delta (21%, 28%). Cocoa is not cultivated at all in Delta state.

Figure 10: Crops Cultivated by Female and Male Farmers



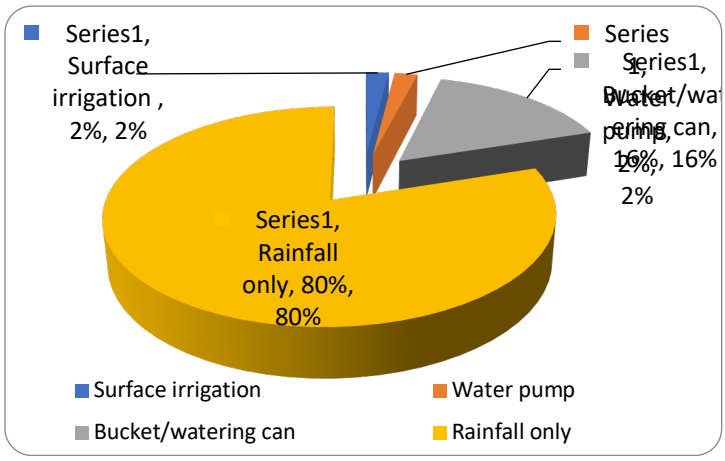
Yam is more cultivated by men (67%) than women (48%). Pepper is more cultivated by women (50%) than men (33%). Cocoa is distinctly cultivated by men (31%) than women (9%).

Figure 11: Cropping methods practiced by farmers



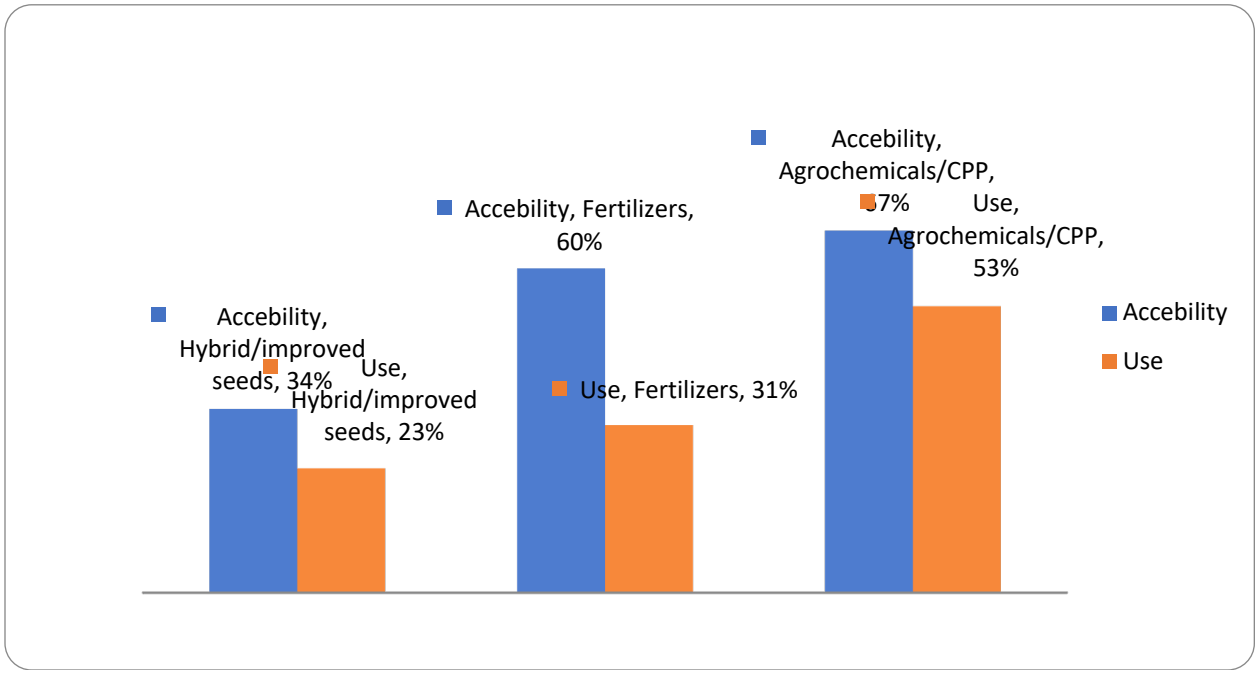
About two-third of the farmers practice intercropping.

Figure 12: Irrigation methods practiced by farmers



8 out of 10 farmers depend solely on rainfall for the irrigation of their crops.

Figure 13: Accessibility and Usage of Agricultural inputs



- About one-third (34%) of the farmers reported having access to improved seeds. However, only 23% out of the farmers use it; resulting in a non-usage gap of 11%.
- 6 out of 10 farmers reported having access to fertilizers though only 3 out 10 farmers use fertilizers; resulting in a non-usage gap of 29%.

- About two-third (67%) of the farmers have access to agrochemicals/CPP while 53% of the farmers actually use them; resulting in a non-usage gap of 14%
- Of the three categories of agricultural inputs, agrochemical is the most accessible to farmers whereas hybrid seeds are the least accessible. However, hybrid seed has the least usage gap. i.e it can be said to be the most used compared to its availability.
- Fertilizers have the highest non-usage gap, owing to the belief of the farmers that their land is very fertile and does not need fertilizers.

Table 15: Accessibility and Usage of Hybrid/Improved seeds

Farmers' access to hybrid/improved seeds	**Total**		**Gender**				**State**			
			Male		**Female**		**Edo**		**Delta**	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Not at all accessible	92	23%	42	21%	50	25%	42	21%	50	25%
Not accessible	153	38%	78	39%	75	38%	90	45%	63	32%
Neutral	21	5%	9	5%	12	6%	10	5%	11	6%
Accessible	122	31%	61	31%	61	31%	51	26%	71	36%
Very accessible	12	3%	10	5%	2	1%	7	4%	5	3%
Farmer's use of hybrid/improved seeds										
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Never	274	69%	128	64%	146	73%	144	72%	130	65%
Rarely	30	8%	21	11%	9	5%	13	7%	17	9%
Neutral	7	2%	5	3%	2	1%	3	2%	4	2%
Often	79	20%	38	19%	41	21%	37	19%	42	21%
Very often	10	3%	8	4%	2	1%	3	2%	7	4%

Improved seed is more accessible in Delta state (39%) than Edo (30%), and used more in Delta (25%) than Edo state (21%).

Table 16: Accessibility and Usage of Fertilizers

Farmers' access to fertilizers	**Gender**						**State**			
	Total		**Male**		**Female**		**Edo**		**Delta**	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Not at all accessible	60	15%	20	10%	40	20%	35	18%	25	13%
Not accessible	77	19%	37	19%	40	20%	64	32%	13	7%
Neutral	25	6%	11	6%	14	7%	18	9%	7	4%
Accessible	211	53%	118	59%	93	47%	78	39%	133	67%
Very accessible	27	7%	14	7%	13	7%	5	3%	22	11%
Farmer's use of										

fertilizers										
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Never	246	62%	103	52%	143	72%	155	78%	91	46%
Rarely	26	7%	19	10%	7	4%	16	8%	10	5%
Neutral	6	2%	5	3%	1	1%	2	1%	4	2%
Often	90	23%	53	27%	37	19%	26	13%	64	32%
Very often	32	8%	20	10%	12	6%	1	1%	31	16%

- There is a huge difference in the level of accessibility of fertilizers in Delta and Edo states. While Delta state reported accessibility level of 78%, Edo state only managed 42%. Of course, a similar trend in the pattern of use: 48% in Delta state and only 14% in Edo state.
- Fertilizers are thrice as used in Delta state as they are in Edo state.
- Male farmers have more access to fertilizers and use it more than female farmers.

Table 17: Accessibility and Usage of Agrochemicals/Crop Protection Products

Farmers' access to agrochemicals/crop protection products	**Gender**						**State**			
	Total		**Male**		**Female**		**Edo**		**Delta**	
Total	400	100%	200	100%	200	100.0%	200	100%	200	100%
Not at all accessible	70	18%	22	11%	48	24%	25	13%	45	23%
Not accessible	44	11%	21	11%	23	12%	37	19%	7	4%
Neutral	18	5%	6	3%	12	6%	14	7%	4	2%
Accessible	200	50%	112	56%	88	44%	114	57%	86	43%
Very accessible	68	17%	39	20%	29	15%	10	5%	58	29%
Farmers' Use of agrochemicals/crop protection products										
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Never	147	37%	50	25%	97	49%	90	45%	57	29%
Rarely	27	7%	14	7%	13	7%	21	11%	6	3%
Neutral	14	4%	7	4%	7	4%	7	4%	7	4%
Often	145	36%	93	47%	52	26%	79	40%	66	33%
Very often	67	17%	36	18%	31	16%	3	2%	64	32%

In a similar vein with the fertilizers, agrochemicals/crop protection products are more accessible (72%) in Delta state and used more (65%) than in Edo state (62%, 42%).

Male farmers have more access to agrochemicals/crop protection products and use it more than female farmers.

3.3.3 CROP PROTECTION PRODUCTS (CPP)/AGROCHEMICALS

Table 18: Farmer's Main Method of Clearing the Weeds on their Farm

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Manually	386	96%	189	95%	197	99%	193	97%	193	97%
With chemicals	14	4%	11	6%	3	2%	7	4%	7	4%

Manual clearing of weeds is notably the commonest method most of the farmers practice.

Figure 14: Farmer's Main Method of Clearing the Weed on their Farm

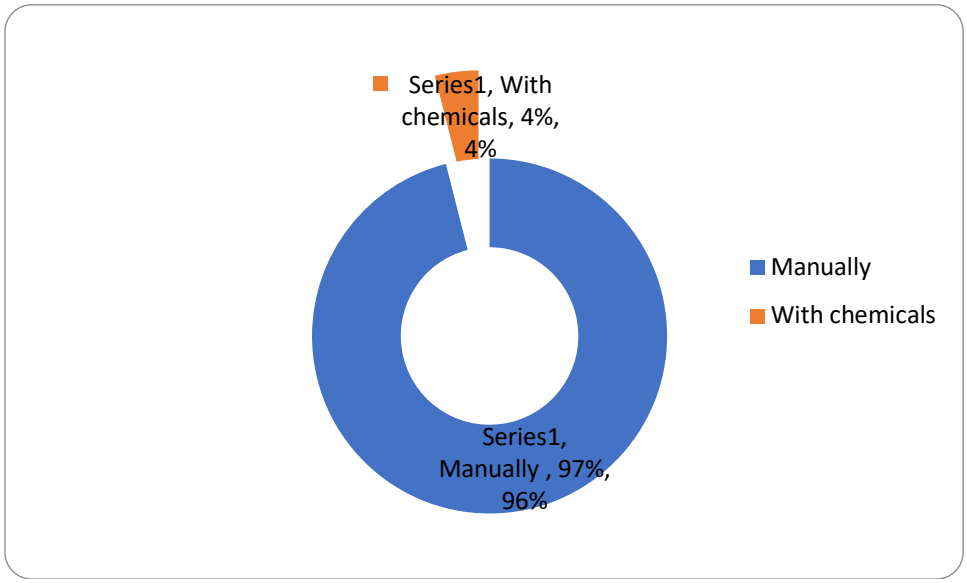


Table 19: Amount (N) paid per acre (i.e. 6 plots) for clearing of weeds

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	386	100%	189	100%	197	100%	193	100%	193	100%
N10,000 or less	138	36%	58	31%	80	41%	66	34%	72	37%
N 11,000 - N20,000	122	32%	63	33%	59	30%	38	20%	84	44%
Above N20,000	20	5%	13	7%	7	4%	11	6%	9	5%
Engage casual labour yearly	63	16%	38	20%	25	13%	58	30%	5	3%

	I do it myself	35	9%	13	7%	22	11%	16	8%	19	10%
	Can't really say	8	2%	4	2%	4	2%	4	2%	4	2%

- Many of the farmers (68%) do not pay more than N20,000 to clear weeds on 1 acre of their farm land.
- In Edo state, an average of N11,315 was determined as the payment to clear weeds on an acre of land, in Delta N11,269 and on the general; N11,288
- It is worth noting that 16% of the farmers engage casual labourers that they pay yearly, and not necessarily pay per acres of land. This is a practice for 3 out of 10 farmers in Edo state. The farmers in Delta state do not really use this approach.

Table 20: How much Casual Labourers are paid Yearly

	Total		**Gender**				**State**			
			Male		**Female**		**Edo**		**Delta**	
Total	63	100%	38	100%	25	100%	58	100%	5	100%
N30,000 - N49,000	18	29%	12	32%	6	24%	16	28%	2	40%
N50,000 - N69,000	15	24%	10	26%	5	20%	13	22%	2	40%
N70,000 - N89,000	6	10%	2	5%	4	16%	5	9%	1	20%
N90,000 - N149,000	14	22%	6	16%	8	32%	14	24%	0	0%
N150,000 and above	10	16%	8	21%	2	8%	10	17%	0	0%

- It was observed that a higher pay of N86,879 on the average is paid to yearly to labourers in Edo state since the practice is more there, unlike Delta state where yearly labourers are paid N49,000 perhaps because it is a not very common practice.
- The females were observed to pay slightly more yearly for labour (mean = N88,800), than the males (N80,631).
- On the general, the average cost paid yearly to labour stands at N83,873.

Figure 15: Chemicals farmers mainly use for clearing weeds

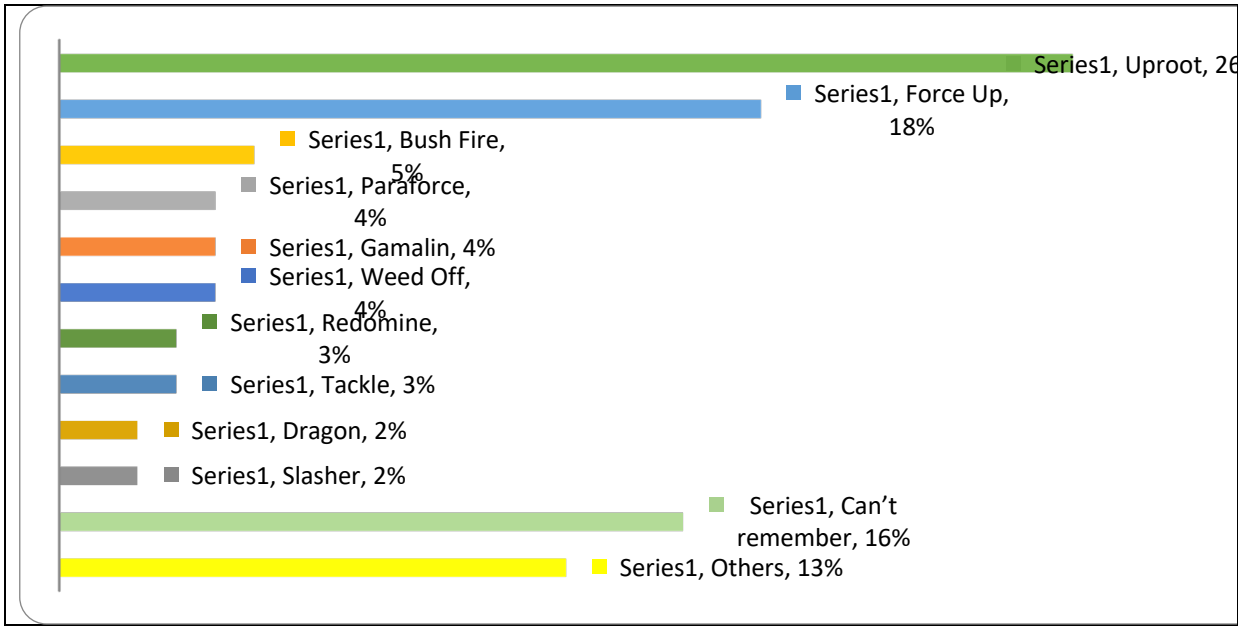
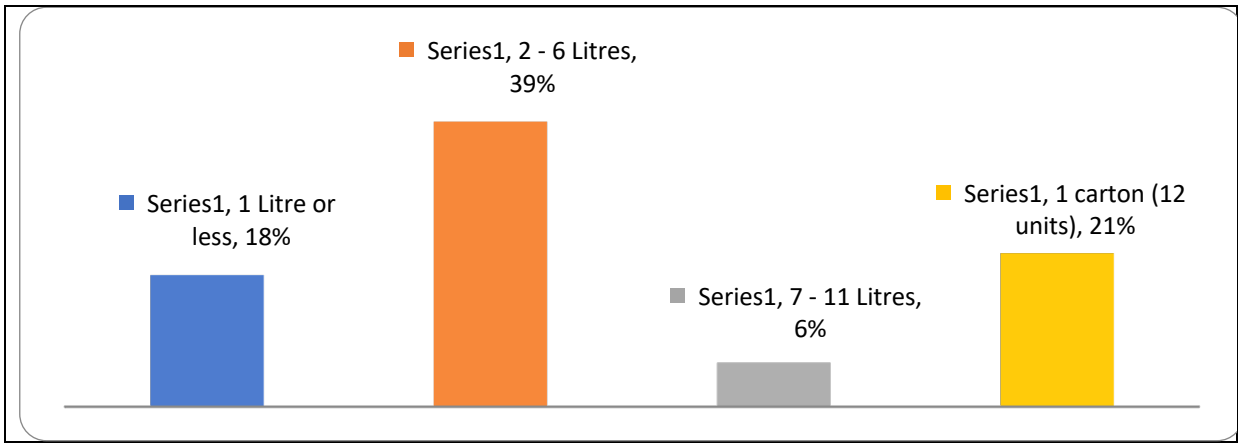


Figure 16: Quantity of Chemicals farmers mainly use



- Across the two states, Uproot is the most commonly used chemical for clearing of weeds on the farm, as 3 out of every 10 farmers who use chemicals use Uproot. Following is Force Up; 18%. It is worth noting that 16% of the farmers do not really know the precise name of the chemicals they use for clearing weeds, as they reported 'can't remember'. Uproot and Force Up can be said to have a market share of 44% of the chemicals used for weeding.
- Farmers generally buy 2 – 6 litres of chemicals (39%), although some (21%) buy up to a carton.

Table 21: Chemicals Farmers Mainly use for clearing weeds and their Quantity Commonly Used

Chemicals Farmers Mainly use for clearing weeds	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	224	100%	134	100%	90	100%	83	100%	141	100%
Uproot	59	26%	28	21%	31	34%	3	4%	56	40%
Force Up	41	18%	28	21%	13	14%	21	25%	20	14%
Bush Fire	12	5%	8	6%	4	4%	8	10%	4	3%
Weed Off	9	4%	8	6%	1	1%	9	11%	0	0%
Gamalin	9	4%	7	5%	2	2%	9	11%	0	0%
Paraforce	8	4%	4	3%	4	4%	5	6%	3	2%
Tackle	6	3%	4	3%	2	2%	0	0%	6	4%
Redomine	6	3%	3	2%	3	3%	2	2%	4	3%
Slasher	5	2%	3	2%	2	2%	0	0%	5	4%
Dragon	5	2%	5	4%	0	0%	1	1%	4	3%
Others	29	13%	22	16%	7	8%	10	12%	19	13%
Can't remember	35	16%	14	10%	21	23%	15	18%	20	14%
Quantity of Chemicals Farmers Mainly Use										
Total	224	100%	134	100%	90	100%	83	100%	141	100%
1 Litre or less	40	18%	24	18%	16	18%	24	29%	16	11%
2 - 6 Litres	88	39%	53	40%	35	39%	30	36%	58	41%
7 - 11 Litres	13	6%	10	7%	3	3%	3	4%	10	7%
1 carton (12 units)	47	21%	30	22%	17	19%	10	12%	37	26%
More than 1 carton	16	7%	12	9%	4	4%	10	12%	6	4%

- While Uproot is the market leader in the class of chemicals for weeding in Delta state (40%), Force Up occupies a similar seat in Edo state, though the share is a little lower (25%).
- As a matter of fact, there are four other chemicals that are more commonly used in Edo state than Uproot, namely: Bush Fire (10%), Weed off (11%), Gamalin (11%) and Paraforce (6%). These five account for more than 50% of the chemicals used for clearing in Edo state.
- Irrespective of gender, farmers generally buy 2 – 6 litres of chemicals, followed by a carton. However, 3 out of 10 farmers in Edo state buy 1 litre or less.

Table 22: Cost of the Chemicals Farmers Mainly Use

Cost of Chemicals Farmers Mainly Use	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	224	100%	134	100%	90	100%	83	100%	141	100%
Less than N2,000	55	25%	32	24%	23	26%	32	39%	23	16%

	N 2,000 - N4,999	54	24%	32	24%	22	24%	14	17%	40	28%
	N 5,000 - N9,999	54	24%	38	28%	16	18%	10	12%	44	31%
	N10,000 - N25,000	28	13%	19	14%	9	10%	13	16%	15	11%
	Above N25,000	11	5%	8	6%	3	3%	7	8%	4	3%
	Can't really say	22	10%	5	4%	17	19%	7	8%	15	11%

Surprisingly, on the average, farmers in Edo state still spend more on chemicals (N7,974) than farmers in Delta state (N6,250). Generally, the average cost farmers spend on chemical is N6,890

Figure 17: Cost of Chemicals farmers mainly use

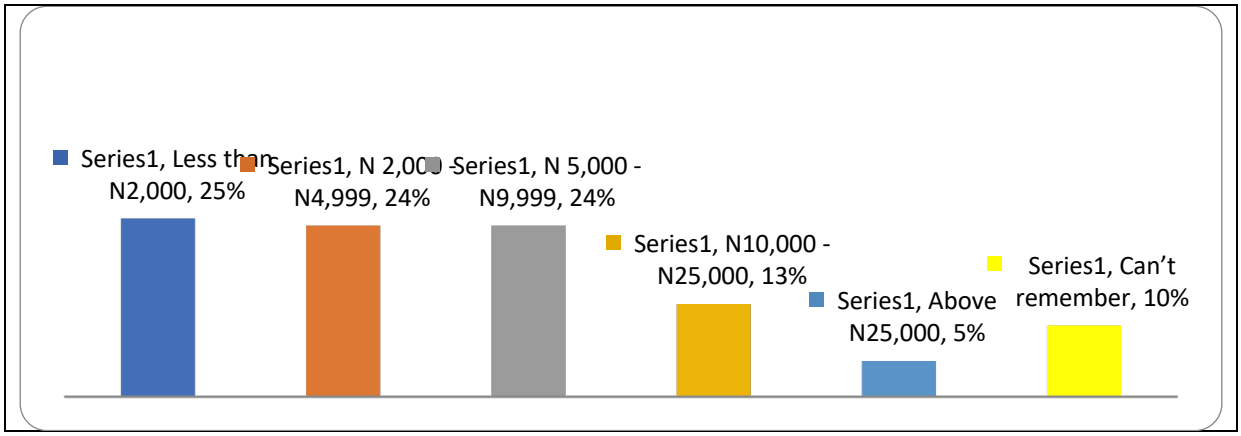


Table 23: The average costs for the different categories of Quantity of Chemicals

Quantity of Chemicals Farmers Mainly Use	N	Naira
Total	204	N6,890
1 Litre or less	40	N1,115
2 - 6 Litres	88	N3,382
7 - 11 Litres	13	N7,423
1 carton (12 units)	47	N10,004
More than 1 carton	16	N38,695

Table 24: Farmer's Method of preparing the soil for Planting

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Manually	395	99%	198	99%	197	99%	200	100%	195	98%
Mechanized methods	5	1%	2	1%	3	2%	0	0%	5	3%

- Nearly all the farmers (99%) manually prepare their soil for planting.

Figure 18: Farmers' Method of Preparing the soil for Planting

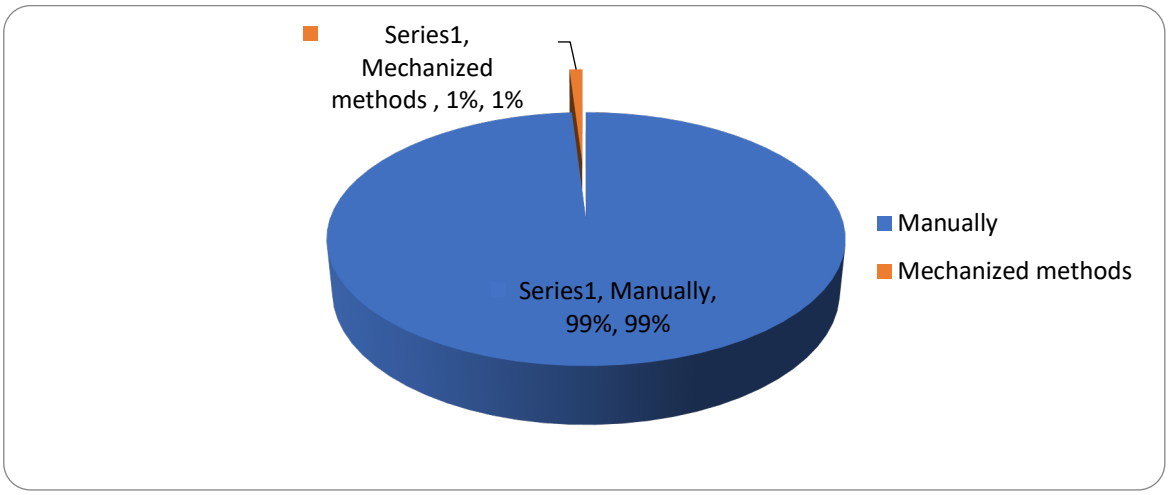
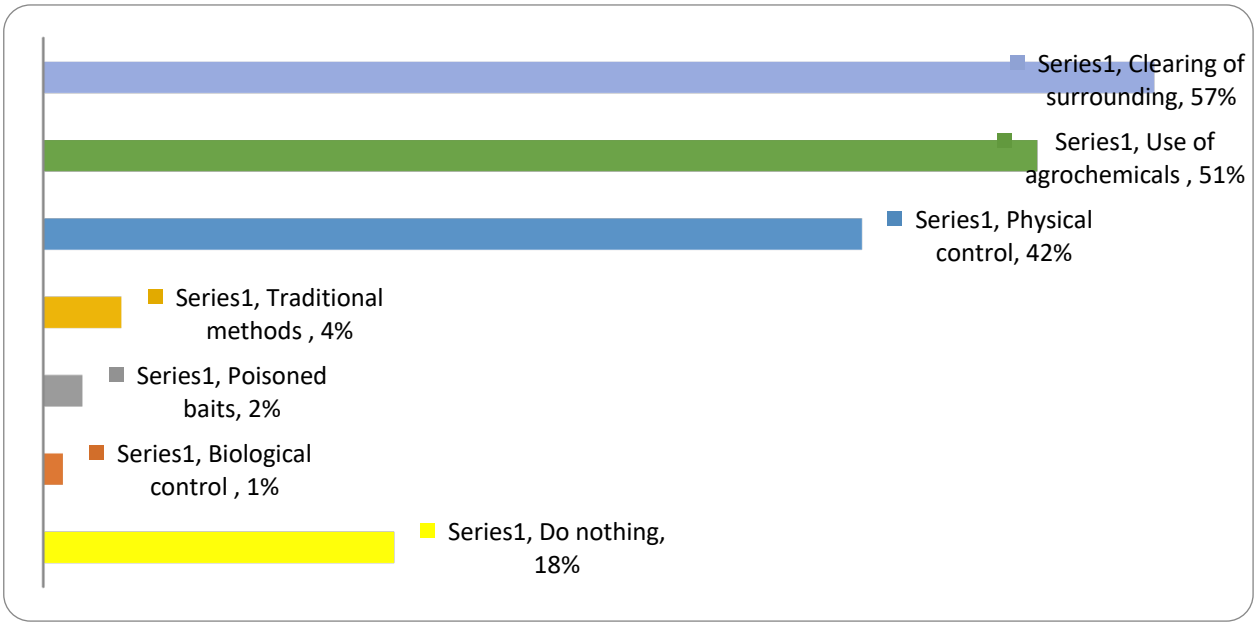


Figure 19: Farmers' Crop Protection Methods from Diseases/Pests



Clearing of the surrounding is the major crop protection method practiced by most of the farmers (57%) which is closely followed by the use of agrochemicals (51%)

Table 25: Farmers' Crop Protection Methods from Diseases/Pests

	Total		Gender				State			
			Male		Female		Edo		Delta	
	400	100%	200	100%	200	100%	200	100%	200	100%
Physical control	167	42%	85	43%	82	41%	40	20%	127	64%
Traditional methods	16	4%	9	5%	7	4%	12	6%	4	2%
Poisoned baits	9	2%	6	3%	3	2%	8	4%	1	1%
Biological control	5	1%	2	1%	3	2%	3	2%	2	1%
Clearing of surrounding	229	57%	113	57%	116	58%	116	58%	113	57%
Use of agrochemicals	204	51%	128	64%	76	38%	92	46%	112	56%
Do nothing	71	18%	32	16%	39	20%	29	15%	42	21%

- The crop protection method most commonly practiced in Delta state is physical control (64%). On the contrary, in Edo state, farmers majorly clear surrounding (58%) in order to protect their crops from diseases and pests.
- It is worth noting that the female farmers (38%) do not really use agrochemicals like the male farmers (64%). They rather clear their surrounding (58%) and use physical controls.

Table 26: Types of CPP used for the Five Major Crops the Farmers Plant

	CASSAVA	MAIZE	YAM	PLANTAIN	PEPPER
N	173	131	131	104	72
Total	100%	100%	100%	100%	100%
Uproot	28%	32%	23%	13%	13%
Force Up	10%	8%	8%	8%	3%
Insecticide	7%	8%	6%	4%	6%
Gamalin	3%	4%	11%	10%	7%
Bush Fire	2%	3%	2%	3%	3%
Slasher	2%	3%	2%	1%	3%
Dragon	2%	2%	2%	0%	0%
Weed Off	1%	0%	0%	5%	0%
Redomine	0%	0%	1%	1%	0%
Tackle	1%	0%	0%	0%	0%
Paraforce	0%	0%	0%	2%	0%
Others	7%	5%	8%	9%	8%
Do not use CPP	32%	25%	27%	37%	47%

Can't remember	6%	10%	9%	10%	11%

	Most used CPP
	2nd most used CPP
	3rd most used CPP
	Do not use CPP

- Uproot is the most commonly used CPP for all the five major crops that the farmers cultivate. This is followed by Force Up for cassava and maize, while gamalin takes the second place for yam and plantain.
- Uproot was mostly used for maize (32%), followed by cassava (28%), and then yam (23%). Only 1 out of 10 farmers who plant plantain and peppers, and use agrochemicals use uproot.
- Almost half (47%) of the farmers who plant peppers do not use any CPP. Also 3 out of 10 farmers who plant cassava, maize and yam do not use any CPP. 4 out of 10 for plantain.

Table 27: Source of CPP recommendation for the Five Major Crops the Farmers Plant

	CASSAVA	MAIZE	YAM	PLANTAIN	PEPPER
N	173	131	131	104	72
Total	100%	100%	100%	100%	100%
Family members	4%	2%	3%	8%	4%
Other farmers	37%	46%	36%	26%	24%
Retailers	7%	3%	8%	7%	1%
Agric extension workers	10%	12%	11%	3%	6%
Agric input company	1%	1%	1%	1%	1%
Others	0%	2%	2%	0%	1%
Nobody/None	41%	32%	38%	54%	60%
Can't remember	0%	3%	1%	2%	3%

	Highest recommendation
	2nd highest recommendation
	Do not use CPP/nobody recommended the CPP

- Other farmers have a great influence on the type of CPP used, as they were reported to be the major source of recommendation.
- Agric extension workers also seem to make some impact in recommending the CPPs used.

- A good proportion of the farmers do not use any CPP nor get recommendations from anyone: this was capitally observed for pepper (60%) and plantain (54%). Similar is the case for cassava (41%), yam (38%) and maize (32%).

Table 28: Reason for the Choice of CPP used for the Five Major Crops the Farmers Plant

	CASSAVA	MAIZE	YAM	PLANTAIN	PEPPER
N	173	131	131	104	72
Total	100%	100%	100%	100%	100%
Based on advice/recommendation	0%	2%	1%	0%	1%
It is effective	50%	52%	51%	53%	44%
It works fast	3%	7%	5%	3%	3%
It saves stress/energy	12%	8%	8%	2%	0%
It works easily	1%	2%	2%	0%	1%
Others	2%	2%	6%	4%	0%
Do not use CPP	32%	25%	27%	37%	47%
Can't remember	1%	2%	1%	2%	3%

	Main reason for using CPP
	2nd main reason for using CPP
	Do not use CPP

The effectiveness of the CPPs is the major reason the farmers use them, as reported by practically half of the farmers who use them.

Table 29: Quantity of CPP used for the Five Major Crops the Farmers Plant

	CASSAVA	MAIZE	YAM	PLANTAIN	PEPPER
N	173	131	131	104	72
Total	100%	100%	100%	100%	100%
1 Litre or less	16%	18%	20%	26%	21%
2 - 3 Litres	8%	8%	8%	6%	6%
4 - 5 Litres	10%	9%	10%	4%	3%
6 - 11 Litres	9%	9%	9%	5%	19%
12 Litres or more	23%	28%	24%	20%	4%

Do not use CPP	32%	25%	27%	37%	47%
Can't remember	2%	2%	2%	3%	4%

	Quantity mostly used
	2nd quantity mostly used
	Do not use CPP

Practically a quarter of the farmers who use CPP for cassava, maize and yam buy 12 litres or more. In the case of plantain and pepper, 26% and 21% respectively buy 1 Litre or less.

Table 30: The Time CPP is Used for the Five Major Crops the Farmers Plant

	CASSAVA	MAIZE	YAM	PLANTAIN	PEPPER
N	173	131	131	104	72
Total	100%	100%	100%	100%	100%
After clearing the land	3%	2%	3%	0%	0%
Just before planting	6%	5%	10%	8%	6%
After planting/tender stage	31%	50%	39%	19%	32%
When the crop is grown	15%	9%	14%	10%	1%
Before and after planting	12%	5%	5%	21%	8%
Do not use CPP	32%	25%	27%	37%	47%
Can't remember	1%	3%	2%	6%	6%

	Time CPP is mostly used - 1st
	Time CPP is mostly used - 2nd
	Do not use CPP

Most farmers use agrochemicals after planting or at tender stage of the crop. This was reported for the five major crops the farmers plant except plantain, which the farmers mostly reported 'before and after planting' (21%), though closely followed by 'after planting/tender stage' (19%).

Table 31: How CPP is used for the Five Major Crops the Farmers Plant

	CASSAVA	MAIZE	YAM	PLANTAIN	PEPPER
N	173	131	131	104	72

Total	100%	100%	100%	100%	100%
By mixing it with water	6%	11%	12%	20%	11%
Use pumping machine/can	2%	2%	2%	3%	4%
By spraying it	57%	55%	53%	35%	32%
By burying it	0%	0%	1%	0%	0%
By soaking it in water	0%	0%	2%	0%	0%
Others	2%	2%	0%	2%	0%
None	32%	26%	28%	37%	47%
Can't remember	1%	4%	2%	4%	6%

	Most used method
	2nd most used method
	Do not use CPP

Farmers mostly spray the agrochemicals on their crops. Two percent of those who use agrochemicals for yam reported soaking it in water.

Table 32: Those Who Advise on How CPP is used on the Five Major Crops the Farmers Plant

	CASSAVA	MAIZE	YAM	PLANTAIN	PEPPER
N	173	131	131	104	72
Total	100%	100%	100%	100%	100%
Family members	5%	2%	5%	5%	4%
Other farmers	31%	37%	34%	25%	24%
Retailers	14%	10%	10%	13%	4%
Agric extension workers	9%	9%	9%	3%	3%
Agric input company	1%	1%	0%	1%	0%
Others	0%	2%	2%	0%	3%
None/ Nobody/Do not use CPP	39%	35%	38%	50%	55%
Can't remember	2%	3%	2%	4%	6%

	Highest provider of advice on CPP
	2nd highest provider of advice on CPP
	Do not use CPP/nobody recommended the CPP

Farmers generally receive advice from other farmers on how CPP is used. Next to other farmers are the retailers, rendering advice to farmers on how CPP is used.

Table 33: Where Farmers Store Crops after Harvesting

	Total		Gender				State			
			Male		Female		Edo		Delta	
	400	100 %	200	100 %	200	100 %	200	100 %	200	100%
Do not store	153	38%	74	37%	79	40%	75	38%	78	39%
On-the-farm storage	88	22%	58	29%	30	15%	56	28%	32	16%
In the house	182	46%	85	43%	97	49%	81	41%	101	51%

Farmers mostly store their crops in the house, as confirmed by 46%. Four out of every 10 farmers do not store their crops at all. Most likely, they sell or consume it instantly.

Table 34: Control of Pest during Storage

		Total		Gender				State			
				Male		Female		Edo		Delta	
	Total	247	100%	126	100%	121	100%	125	100%	122	100%
	Yes	73	30%	47	37%	26	21%	33	26%	40	33%
	No	174	70%	79	63%	95	79%	92	74%	82	67%

Only 30% of the farmers who store their crops control for pests during storage. More males than females control for pests during storage. More of the Delta state farmers (33%) than the Edo state farmers (26%) store their crops.

3.3.4 FERTILIZERS

Table 35: Farmers' use of fertilizers

		Total		Gender				State			
				Male		Female		Edo		Delta	
	Total	400	100%	200	100%	200	100%	200	100%	200	100%
	Use fertilizers	138	35%	78	39%	60	30%	36	18%	102	51%
	Do not use fertilizers	262	66%	122	61%	140	70%	164	82%	98	49%

About one-third of the farmers use fertilizers. The use of fertilizers is way higher in Delta state (51%) than in Edo state (18%); usage is about 3 times more in Delta state. More males (39%) than females (30%) also reported using fertilizers.

Figure 20: Farmer's use of fertilizers

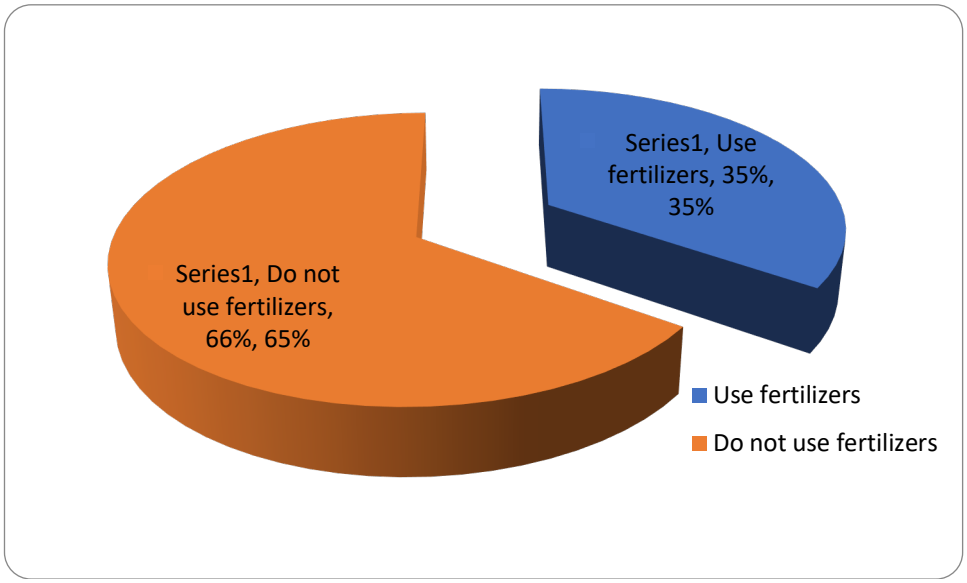


Table 36: Type of Fertilizer Used

	CASSAVA	MAIZE	YAM
N	115	89	81
Total	100%	100%	100%
NPK	48%	53%	43%
Urea	14%	13%	11%
Gamalin	1%	1%	1%
Prime Gold	3%	4%	5%
Korea	0%	0%	1%
Others	0%	0%	0%
Do not use fertilizers for this crop	23%	18%	20%
Do not know the specific name	8%	0%	7%
Can't remember	4%	10%	11%

	Most used
	2nd most used
	3rd most used
	Do not use fertilizers for this crop

- Irrespective of the crop, NPK is the commonest fertilizer used by the farmers: cassava; 48%, maize; 53% and yam; 43%.
- Second to NPK is gamalin. This was reported by 14% of the farmers who plant cassava and generally use fertilizers, 13%; maize and 11%; yam.
- Practically 2 out of 10 farmers who plant the 3 most cultivated crops do not use any fertilizer.

Table 37: Who recommended the Fertilizer Used

	CASSAVA	MAIZE	YAM
N	115	89	81
Total	100%	100%	100%
Family members	12%	13%	14%
Other farmers	23%	27%	21%
Retailers	5%	3%	7%
Agric extension workers	20%	20%	21%
Agric input companies	0%	0%	0%
Others	0%	1%	1%
Nobody/do not use fertilizers for this crop	40%	35%	36%

	Highest recommendation
	2nd highest recommendation
	Nobody/do not use fertilizers for this crop

- Recommendation on the fertilizer used was more by other farmers; 23%, 27% and 21% for cassava, maize and yam respectively.
- The same level of recommendation was reported by farmers who plant yam: 21% each for other farmers as well as agric extension workers.

Table 38: Reason for the Choice of Fertilizer Used

	CASSAVA	MAIZE	YAM
N	115	89	81
Total	100%	100%	100%
It makes the crops grow better	51%	49%	43%
It makes crops grow faster	14%	19%	14%
It adds nutrients to soils	5%	4%	7%

It is effective	4%	1%	5%
It replenishes lost nutrient in the soil	0%	1%	4%
Others	3%	7%	7%
Do not use fertilizers for this crop	23%	18%	20%

	Highest recommendation
	2nd highest recommendation
	Do not use fertilizers for this crop

The reason for the choice of use of fertilizers is mainly because it makes crops grow better. This was reported by 51%, 49% and 43% of the farmers who plant cassava, maize and yam respectively and generally use fertilizers.

Table 39: Quantity of Fertilizer Used

	CASSAVA	MAIZE	YAM
N	115	89	81
Total	100%	100%	100%
Measurable cups and bowls	2%	3%	5%
Small handy packs (1 - 10 kg)	5%	6%	1%
1 bag (25kg or 50kg)	47%	48%	49%
2 - 4 bags (100 - 200kg)	17%	22%	20%
More than 4 bags	5%	2%	4%
Can't remember	1%	0%	1%
None	23%	18%	20%

	Quantity mostly used
	2nd quantity mostly used
	Do not use fertilizers for this crop

1 bag (25 kg or 50kg) is the most commonly used quantity. Nearly half of the farmers confirmed this.

Table 40: Time Fertilizer is used

	CASSAVA	MAIZE	YAM

N	115	89	81
Total	100%	100%	100%
After clearing the land	0%	1%	1%
Just before planting	7%	6%	2%
After planting/tender stage	34%	35%	56%
When the crop is grown	3%	2%	1%
During planting	18%	8%	4%
Before and after planting	0%	18%	1%
Certain periods of the year/seasons	12%	11%	15%
Can't remember	3%	1%	0%
None	23%	18%	20%

	Time Fertilizer is mostly used - 1st
	Time Fertilizer is mostly used - 2nd
	Do not use fertilizers for this crop

The farmers mostly use fertilizers after planting or when the plant is still at a tender stage: 34% and 35% of the farmers reported this for cassava and maize respectively. More than half (56%) confirmed this for yam.

Table 41: How Fertilizer is used

	CASSAVA	MAIZE	YAM
N	115	89	81
Total	100%	100%	100%
By mixing it with water	2%	2%	4%
Dig and bury it	44%	48%	42%
Scattering it on the farm	23%	20%	14%
Rubbing it on the plant	5%	10%	16%
Can't remember	3%	1%	4%
None	23%	18%	20%

	Most used method

	2nd most used method
	Do not use fertilizers for this crop

The commonest method of fertilizer application is by digging the ground and burying it, though less half of the farmers practice this. Cassava; 44%, maize; 48% and yam; 42%.

Table 42: Those Who Advises on how Fertilizer is used

	CASSAVA	MAIZE	YAM
N	115	89	81
Total	100%	100%	100%
Family member	12%	12%	17%
Other farmers	25%	31%	25%
Retailers	9%	2%	9%
Agric extension workers	16%	16%	15%
Others	2%	1%	2%
Nobody/Do not use fertilizer for this crop	37%	35%	32%
Can't remember	0%	2%	0%

	Highest provider of advice on fertilizer
	2nd highest provider of advice on fertilizer
	Nobody/Do not use fertilizer for this crop

Other farmers play the most significant role in giving advice on how fertilizer is used. For cassava; 25%, maize; 31% and yam; 25%.

Table 43: Where/who Farmers buy Fertilizers from

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	138	100 %	78	100 %	60	100%	36	100 %	102	100%
Open market	94	68%	53	68%	41	68%	27	75%	67	66%

	Sprayers	5	4%	2	3%	3	5%	1	3%	4	4%
	GES outlets	24	17%	15	19%	9	15%	2	6%	22	22%
	Others	13	9%	9	12%	4	7%	2	6%	11	11%

More than two-third of the farmers buy fertilizers from open markets, as much as three-quarter in Edo state.

Table 44: Fertilizer pack/sizes that Farmers buy most.

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	138	100 %	78	100 %	60	100%	36	100 %	102	100%
Measurable cups or bowls	9	7%	3	4%	6	10%	8	22%	1	1%
Small handy packs (1 - 10kg)	7	5%	3	4%	4	7%	5	14%	2	2%
Medium packs or bags (25kg)	22	16%	11	14%	11	18%	7	19%	15	15%
Large bags (50 Kg)	91	66%	57	73%	34	57%	12	33%	79	77%
Can't Remember	9	7%	4	5%	5	8%	4	11%	5	5%

Generally, two-third of the farmers buy fertilizers in large 50Kg bags. A close look shows that this is not typically the situation in Edo state as only one-third of the farmers buy in large bags. 2 out of 10 farmers in Edo state actually buy in measurable cups or bowls. On the contrary, more than three-quarter of the farmers in Delta state buy in large bags. Also, more males (73%) than females (57%) buy in large bags.

Figure 21: Where/who farmers buy fertilizers from

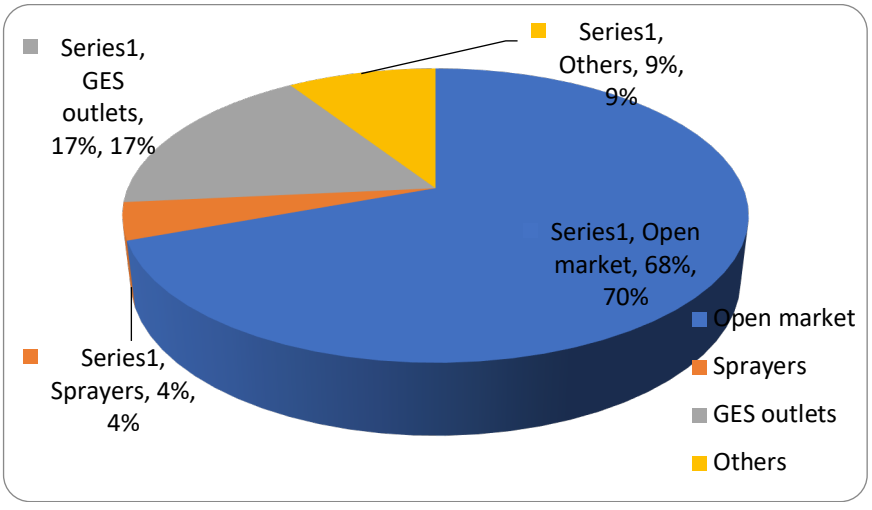


Figure 22: Pack/sizes of fertilizers that farmers buy

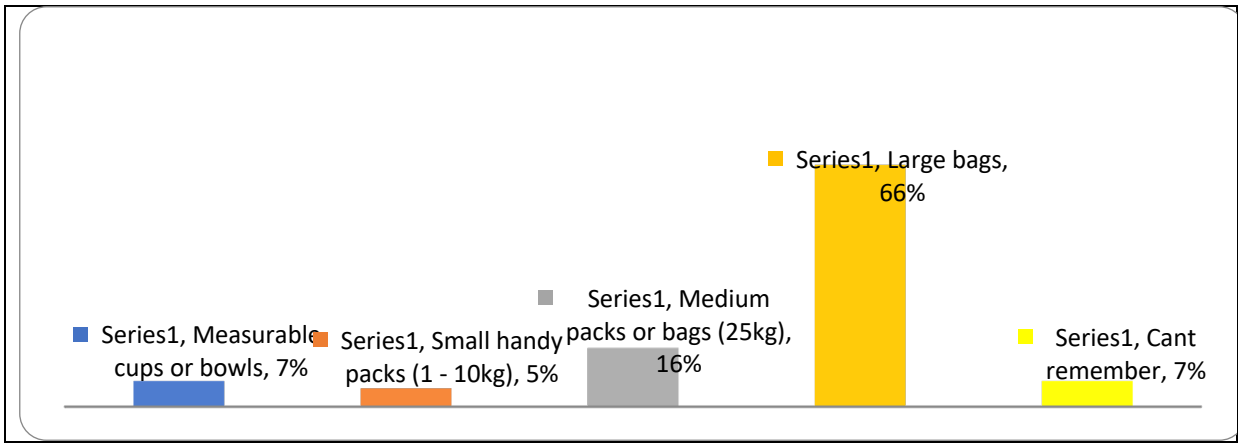


Table 45: Amount Farmers buy the fertilizer packs/sizes

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	138	100%	78	100%	60	100%	36	100%	102	100%
Less than N2000	11	8%	3	4%	8	13%	10	28%	1	1%
N2,000 - N3,999	19	14%	7	9%	12	20%	3	8%	16	16%
N4,000 - N5,999	55	40%	34	44%	21	35%	4	11%	51	50%
N6,000 and above	36	26%	24	31%	12	20%	13	36%	23	23%
Can't remember	17	12%	10	13%	7	12%	6	17%	11	11%

- About 40% of the farmers pay N4,000 - N5,999 to buy the packs/sizes of fertilizers they use. Half (50%) of the Delta state farmers spend N4,000 - N5,999 compared to 11% among Edo farmers, who majorly (36%) spend more than N6,000 on fertilizers.
- 75% of the male farmers spend N4,000 or above on fertilizers whereas 55% of their female counterparts spend the same amount on fertilizers.

Table 46: The average costs for the different packs/sizes of fertilizers that farmers buy

Fertilizer pack/sizes that Farmers buy most.	N	Naira
Total	121	N 5,347
Measurable cups or bowls	7	N 1,043
Small handy packs(1 - 10kg)	7	N 1,846
Medium packs or bags (25kg)	20	N 4,075
Large bags (50 Kg)	87	N 6,241

Table 47: Frequency of Farmers' purchase of the fertilizer packs/sizes

		Total		Gender				State			
				Male		Female		Edo		Delta	
	Total	138	100%	78	100%	60	100%	36	100%	102	100%
	Weekly	0	0%	0	0%	0	0%	0	0%	0	0%
	Twice a month	1	1%	1	1%	0	0%	1	3%	0	0%
	Monthly	7	5%	5	6%	2	3%	6	17%	1	1%
	Quarterly	15	11%	11	14%	4	7%	11	31%	4	4%
	Twice a year	61	44%	36	46%	25	42%	3	8%	58	57%
	Once a year	45	33%	21	27%	24	40%	11	31%	34	33%
	Can't remember	9	7%	4	5%	5	8%	4	11%	5	5%

Many of the farmers (44%) buy the fertilizers they use at least twice a year. In Edo state, the farmers mostly either buy quarterly (31%) or buy once a year (31%).

Figure 23: How much farmers spend on fertilizer

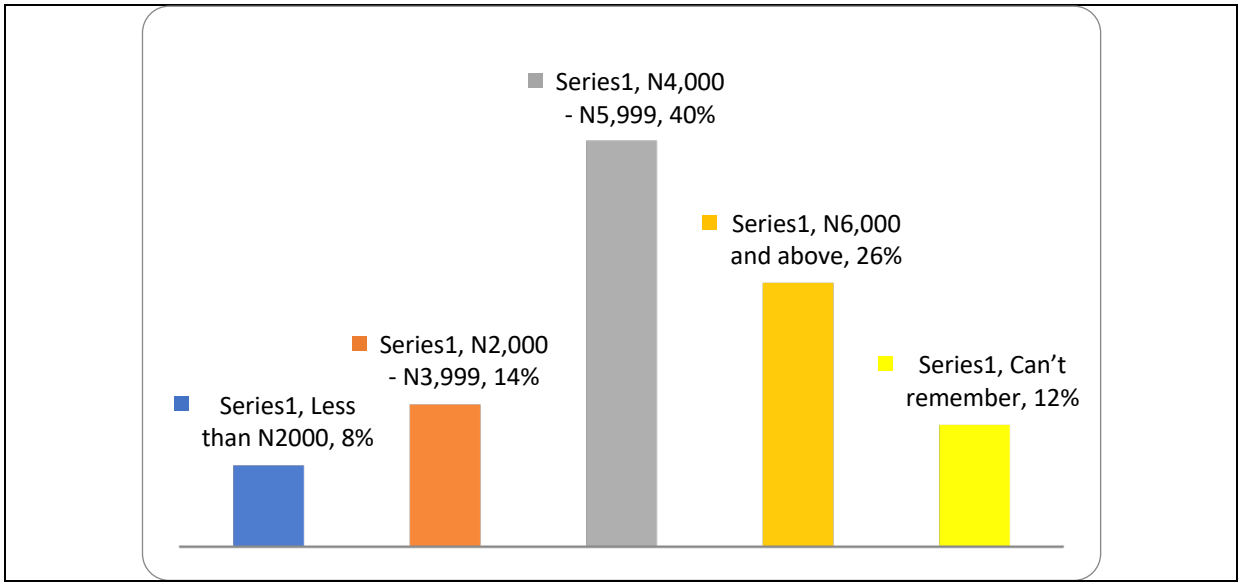


Figure 24: Frequency of farmers purchase of the fertilizer packs/sizes

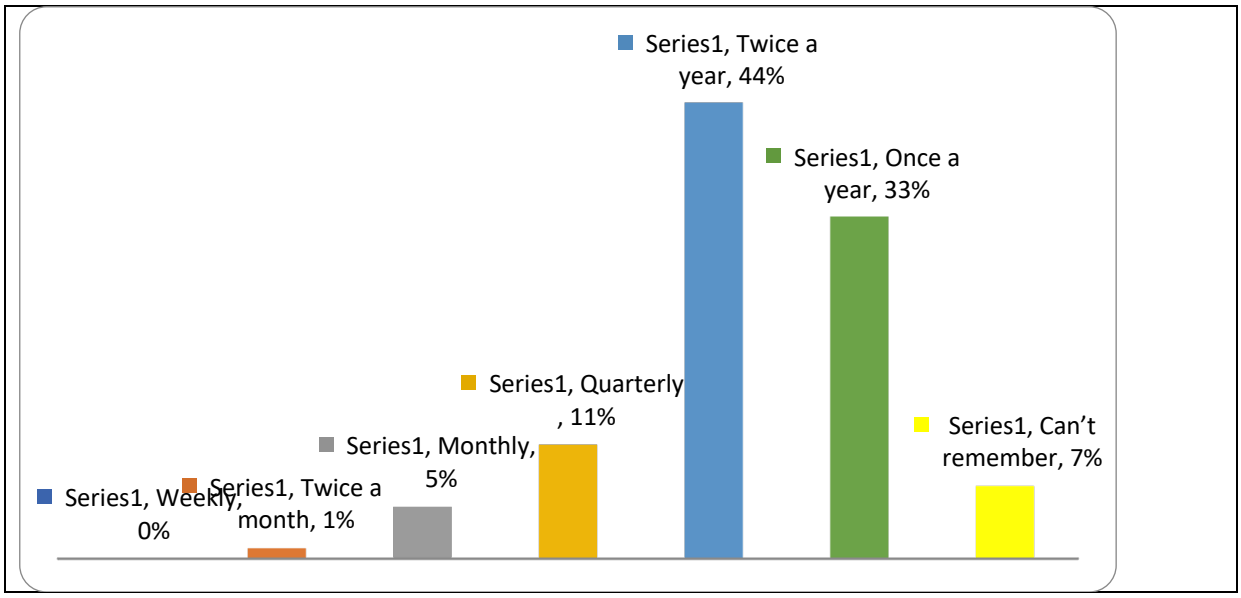


Table 48: Farmers' Knowledge of the Benefits of Fertilizer

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100 %	200	100 %	200	100 %	200	100 %	200	100 %
To add nutrient to the soils	300	75%	162	81%	138	69%	141	71%	159	80%
It replenishes lost nutrient in the soil	141	35%	84	42%	57	29%	40	20%	101	51%

- 'Adding nutrient to the soil' is believed to be the main benefit of fertilizers. This was reported by 75% of the farmers (81% of the males and 69% of the females, 71% of Edo farmers and 80% of the Delta farmers.
- The males (42%) understand the benefit of fertilizer to include replenishing of lost nutrient in the soil than the females do (29%).

3.3.5 SEEDS

Table 49: Source of Seeds that Farmers Plant

	Total	Gender		State	
		Male	Female	Edo	Delta

	Total	400	100%	200	100%	200	100%	200	100%	200	100%
	I take them from my produce and reuse	246	62%	112	56%	134	67%	123	62%	123	62%
	I buy/collect from other farmers	35	9%	28	14%	7	4%	23	12%	12	6%
	I buy from traders or retailers in the market	139	35%	67	34%	72	36%	62	31%	77	39%

Many of the farmers (62%) reported that they simply take their seeds from their produce and reuse. More females (67%) than males (56%) reported this.

Seeds Used for Planting Maize

Figure 25: The packaging of Seeds

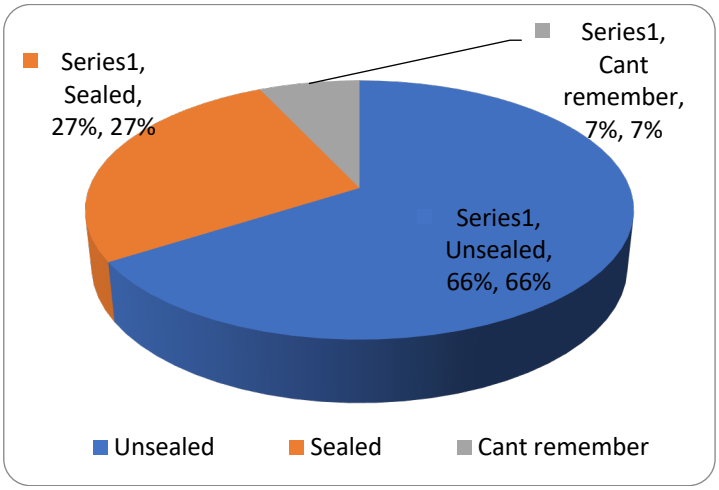


Figure 26: The Source of Seeds

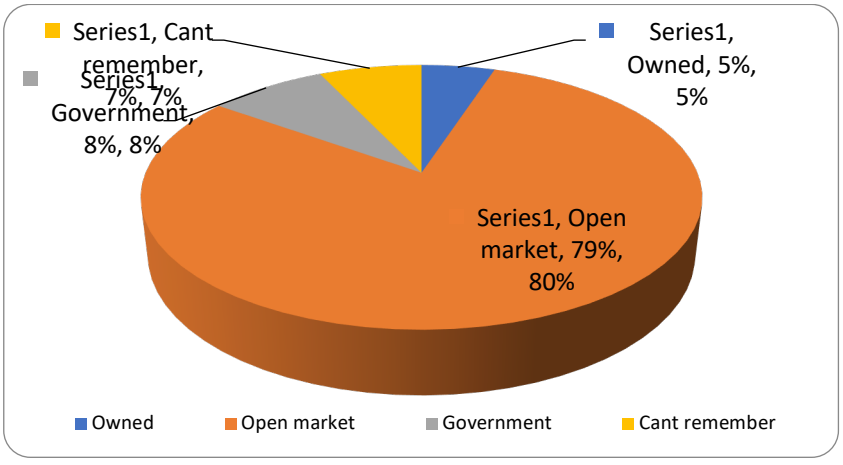


Figure 27: The Quantity of Seeds

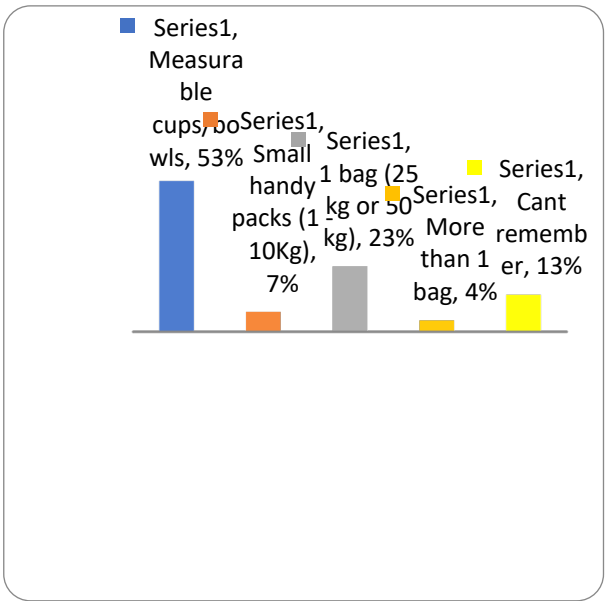
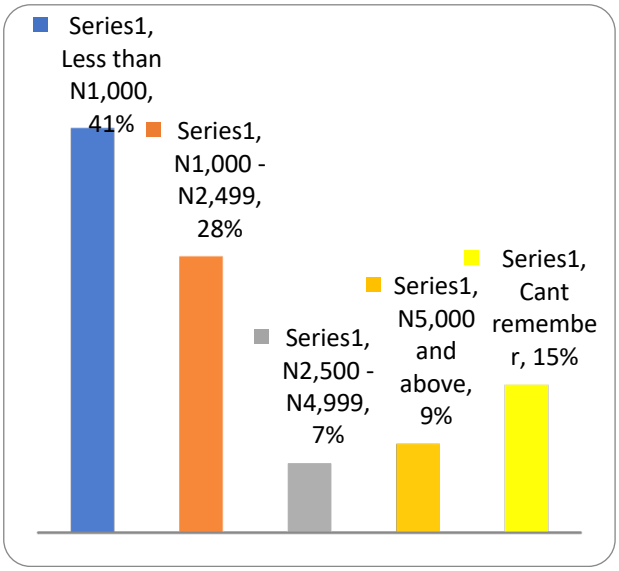


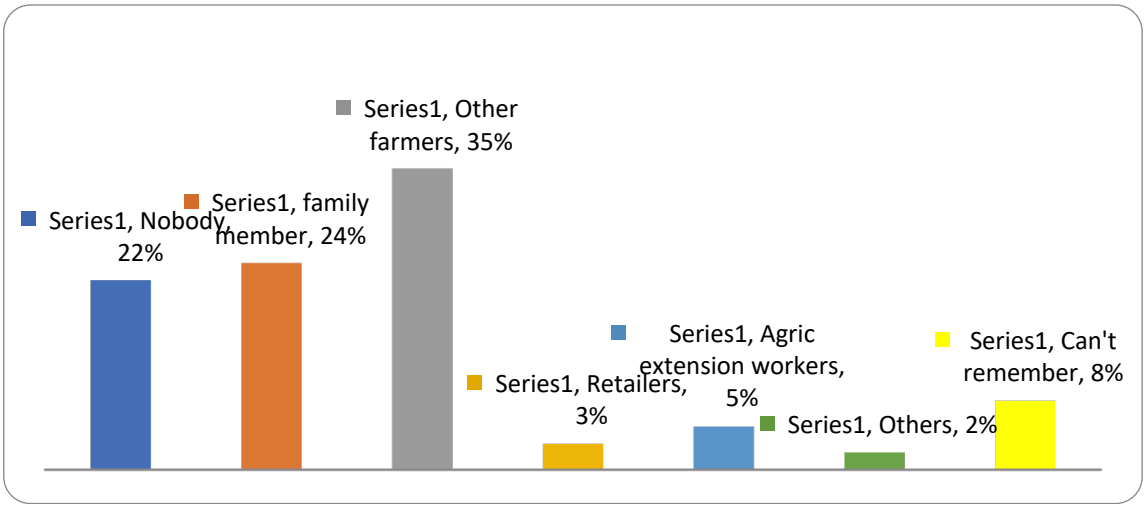
Figure 28: The Cost of Seeds



- Considering the most cultivated crop among the farmers i.e maize, the packaging, source, quantity and the cost of the seeds used in planting was examined.

- The seeds used by two-third (66%) of the farmers were unsealed from open markets (79%). The farmers mostly (53%) buy the seeds in measurable cups or bowls. This costs less than N1,000, as reported by 41% of the farmers.

Figure 29: Those who recommended the seeds that Farmers Use to Plant Maize



Other farmers have the highest influence in recommending the seeds that the farmers use to plant their maize.

3.3.6 GOOD AGRICULTURAL PRACTICES (GAP)

Table 50: How Farmers Learnt about How to Farm

	Total		Gender				State			
			Male		Female		Edo		Delta	
	400	100 %	200	100%	200	100%	200	100 %	200	100 %
Copying what others farmers do/get advice from other farmers	43	11%	28	14%	15	8%	25	13%	18	9%
Learnt from family members/inherited practices	387	97%	193	97%	194	97%	191	96%	196	98%
Learnt from retailers	5	1%	3	2%	2	1%	3	2%	2	1%
Received trainings from agriculture expert	12	3%	10	5%	2	1%	4	2%	8	4%

- Nearly all the farmers learnt how to farm from family members or they inherited the practice.
- Farmers also copy what other farmers do or get advice from other farmers. This was reported by 11% of the farmers.

Table 51: Training on How to farm properly.

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Have received training	73	18%	52	26%	21	11%	28	14%	45	23%
Have never received training	327	82%	148	74%	179	90%	172	86%	155	78%

Few farmers (18%) have received training on how to farm properly.

Figure 30: Training on How to farm properly

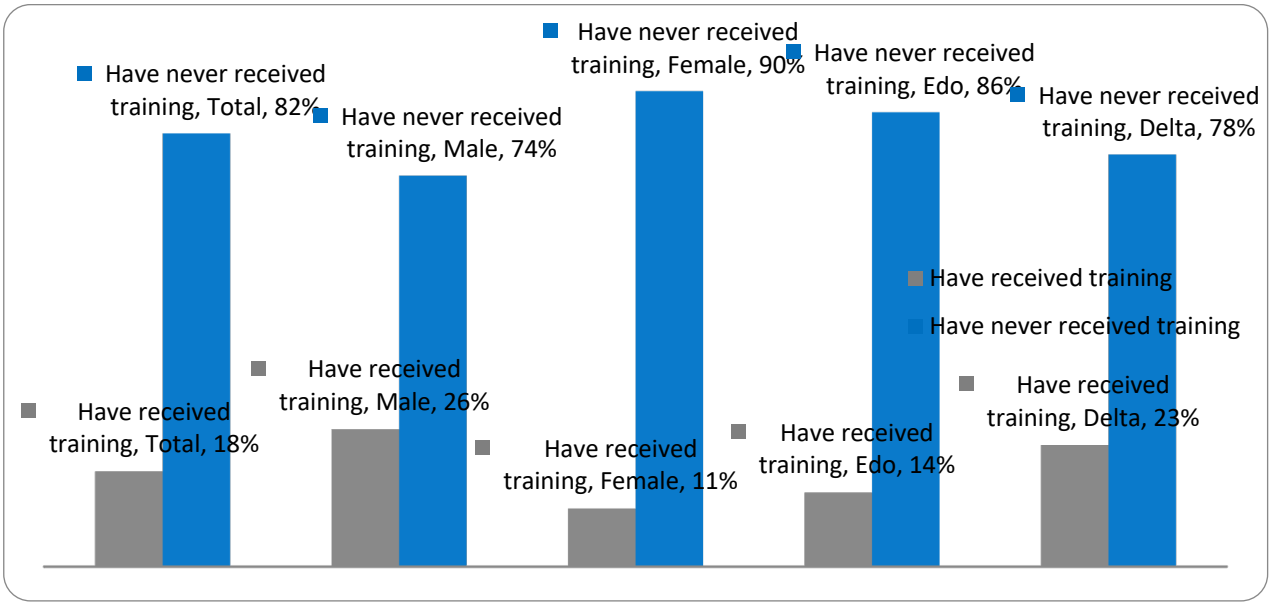


Table 52: Those who Farmers received training of GAP from

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	73	100%	52	100%	21	100%	28	100%	45	100%
Fellow farmers	5	7%	4	8%	1	5%	3	11%	2	4%
Family members	38	52%	22	42%	16	76%	6	21%	32	71%
Retailers	1	1%	0	0%	1	5%	0	0%	1	2%
Agric extension	27	37%	24	46%	3	14%	18	64%	9	20%

	workers										
	Agroinput companies	2	3%	2	4%	0	0%	1	4%	1	2%

- A little over half of the farmers (52%) reported that they received training of GAP from family members while a little over one-third (37%) reported that agriculture extension workers trained them.
- Family members chiefly trained women (76%).
- There is a high report of training by agric extension workers in Edo state (64%), though they are yet to greatly penetrate Delta state (20%).
- Training by family members is more reported in Delta state (71%) than Edo state (21%).

Table 53: The knowledge Farmers received from the GAP training

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	73	100%	52	100%	21	100%	28	100%	45	100%
Crop spacing	59	81%	41	79%	18	86%	18	64%	41	91%
Use of Crop Protection Products	52	71%	37	71%	15	71%	14	50%	38	84%
Fertilizer application	44	60%	31	60%	13	62%	13	46%	31	69%
Farm maintenance	62	85%	43	83%	19	90%	24	86%	38	84%
Weeding	61	84%	43	83%	18	86%	20	71%	41	91%

- The training farmers had received on GAP focused mostly on farm maintenance (85%), closely followed by weeding (84%) and crop spacing (81%). Fertilizers (60%) and use of crop protection products (71%) were the least areas of concentration of the knowledge shared at the GAP training.
- Farmers in Delta state who have received GAP training have received more knowledge on CPP (84%) and fertilizers (69%) than farmers in Edo state; 50% and 46% on CPP and fertilizers respectively.

Figure 31: The knowledge Farmers received from the GAP training

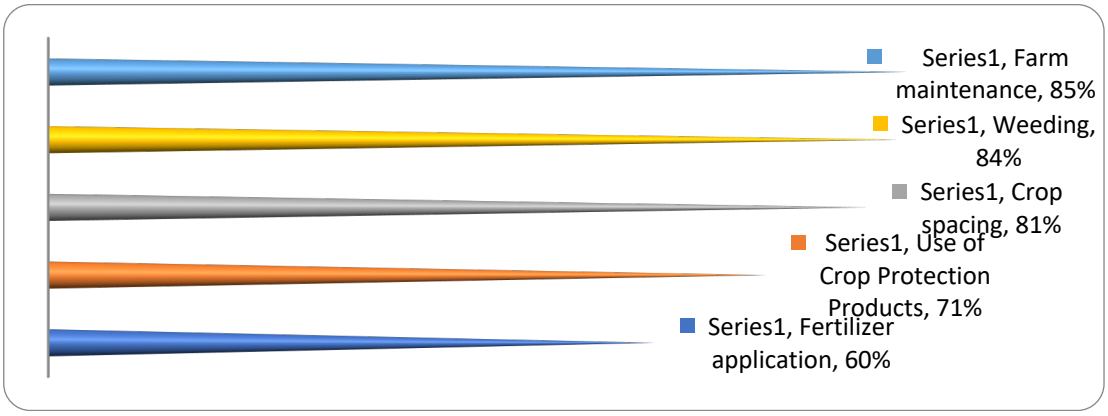


Figure 32: Change in farming methods and practices as a result of the knowledge gained from training

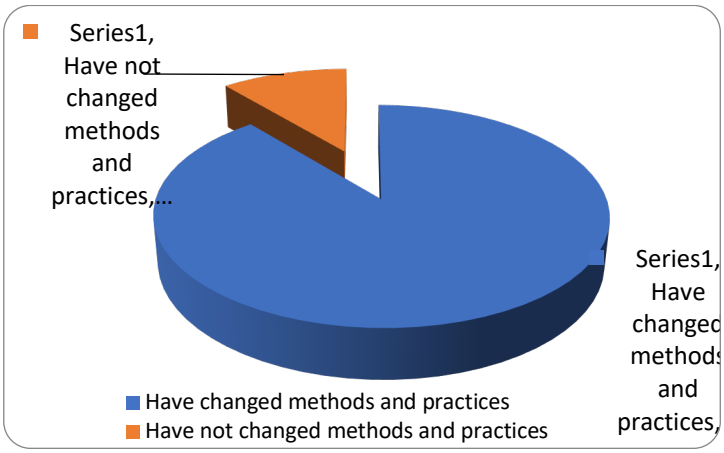
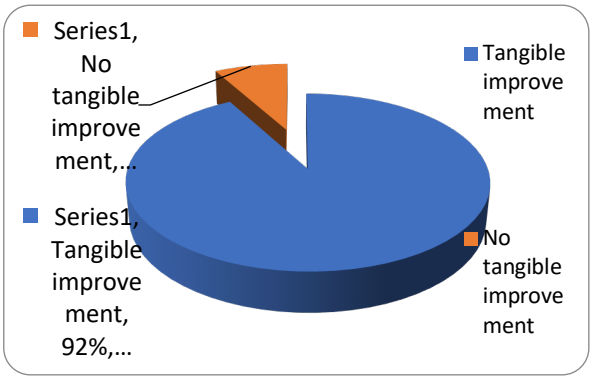


Figure 33: Tangible improvement in crop productivity on the form as a result of training received.



Impressively, most of the farmers (89%) have changed their methods and practices as a result of the knowledge gained from the training they received. Consequently, they (92%) experienced tangible improvement in crop productivity on their farms.

Table 54: Change in Farming Methods and Practices as a result of the knowledge gained from training

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	73	100%	52	100%	21	100%	28	100%	45	100%
Have changed methods	65	89%	45	87%	20	95%	21	75%	44	98%

	and practices										
	Have not changed methods and practices	8	11%	7	13%	1	5%	7	25%	1	2%

Farmers in Edo state (25%) are more resistant to change than farmers in Delta state (2%). Also, the male farmers (13%) are more resistant to change than female farmers (5%).

Table 55: Tangible improvement in crop productivity on the farm as a result of training received

		Total		Gender				State			
				Male		Female		Edo		Delta	
	Total	73	100%	52	100%	21	100%	28	100%	45	100%
	Tangible improvement	67	92%	46	88%	21	100%	23	82%	44	98%
	No tangible improvement	6	8%	6	12%	0	0%	5	18%	1	2%

In addition to being resistant to change, a larger proportion of the farmers in Edo state (18%) did not experience any tangible improvement, like the famers in Delta state, where only 2% did not experience tangible improvement. Similarly, more of the male farmers (12%) did not experience any tangible improvement, whereas all the female farmers experienced tangible improvement in crop productivity.

Figure 34: Access to Agriculture Extension Workers

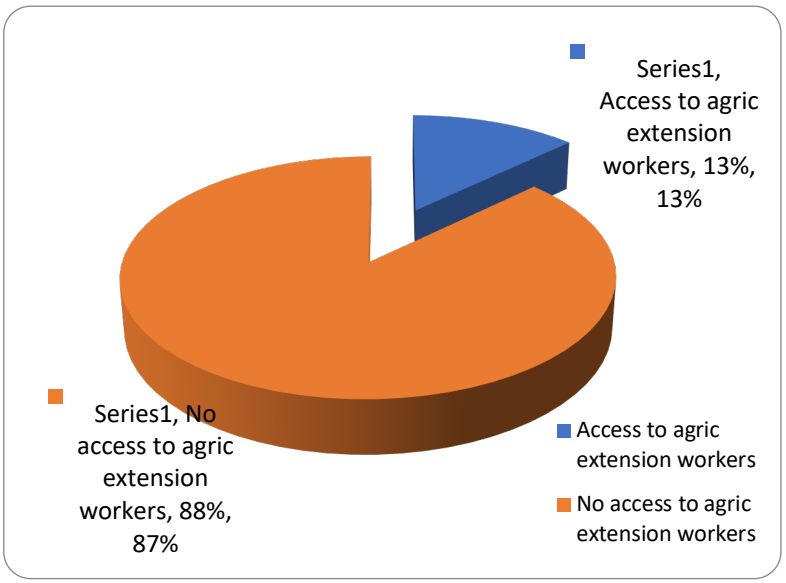


Figure 35: Frequency of Visit of Agriculture Extension Worker

Very few farmers (13%) have access to agric extension workers. Nearly half (46%) of the few farmers who have access to them reported that they only come once in a year, although about one-third (32%) reported their visit to be twice a year.

Table 56 *Access to Agriculture Extension Workers*

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Access to agric extension workers	50	13%	36	18%	14	7%	21	11%	29	15%
No access to agric extension workers	350	88%	164	82%	186	93%	179	90%	171	86%

More male farmers (18%) than female farmers (7%) reported having access to agric extension workers.

Table 57 *Frequency of Visit of Agriculture Extension Workers*

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	50	100%	36	100%	14	100%	21	100%	29	100%
Weekly	2	4%	1	3%	1	7%	2	10%	0	0%
Monthly	3	6%	3	8%	0	0%	1	5%	2	7%
Quarterly	6	12%	4	11%	2	14%	3	14%	3	10%
Twice a year	16	32%	11	31%	5	36%	6	29%	10	34%
Once a year	23	46%	17	47%	6	43%	9	43%	14	48%

Farmers mostly reported the visits of the agric extension workers to be only once a year irrespective of gender and locations.

Table 58 *Best person to teach Good Agricultural Practices*

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Fellow farmers	19	5%	13	7%	6	3%	14	7%	5	3%
Family members	97	24%	46	23%	51	26%	55	28%	42	21%
Retailers	3	1%	1	1%	2	1%	3	2%	0	0%
Agric extension workers/Government	276	69%	136	68%	140	70%	128	64%	148	74%

	Agro input companies	5	1%	4	2%	1	1%	0	0%	5	3%

Despite the infrequent visits, over two-third (69%) of the farmers still think the agric extension workers are in the best position to teach them GAP, followed by family members (24%).

Table 59 ***Best person to follow up on Good Agricultural Practices***

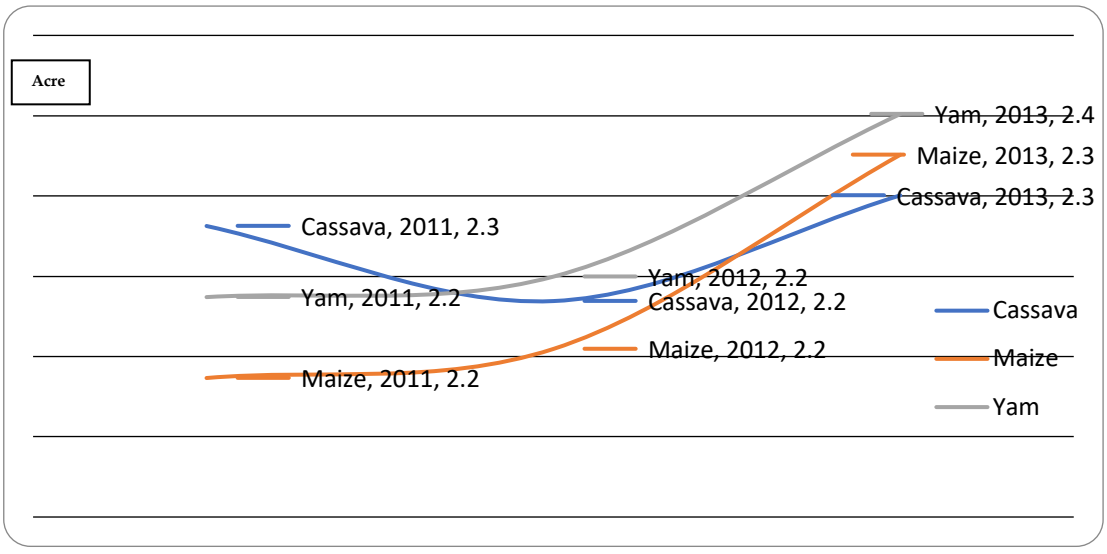
	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Fellow farmers	37	9%	20	10%	17	9%	33	17%	4	2%
Family members	90	23%	42	21%	48	24%	48	24%	42	21%
Retailers	6	2%	3	2%	3	2%	5	3%	1	1%
Agric extension workers/Government	257	64%	130	65%	127	64%	110	55%	147	74%
NGOs/Churches/Mosques	2	1%	1	1%	1	1%	1	1%	1	1%
Agro-input companies	8	2%	4	2%	4	2%	3	2%	5	3%

About two-third of the farmers (64%) also feel the agric extension workers are in the best position to follow up on teachings of GAP, followed by family members (23%).

Figure 36: *Best to teach and follow up on Good Agricultural Practices (GAP)*

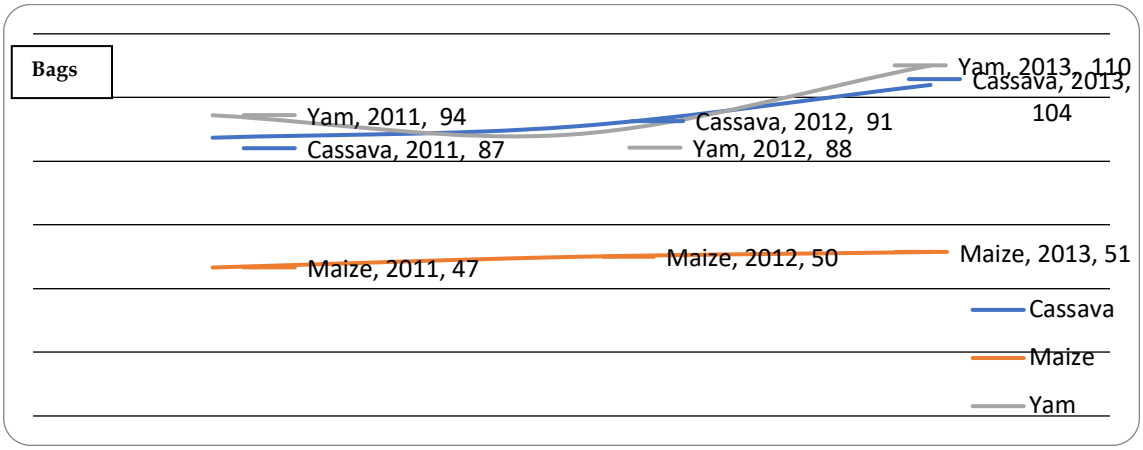
3.3.7 SALES AND INCOME

Figure 37: **Average Farm Land Size (Acres) used for the 3 most cultivated crops between 2011 and 2013**



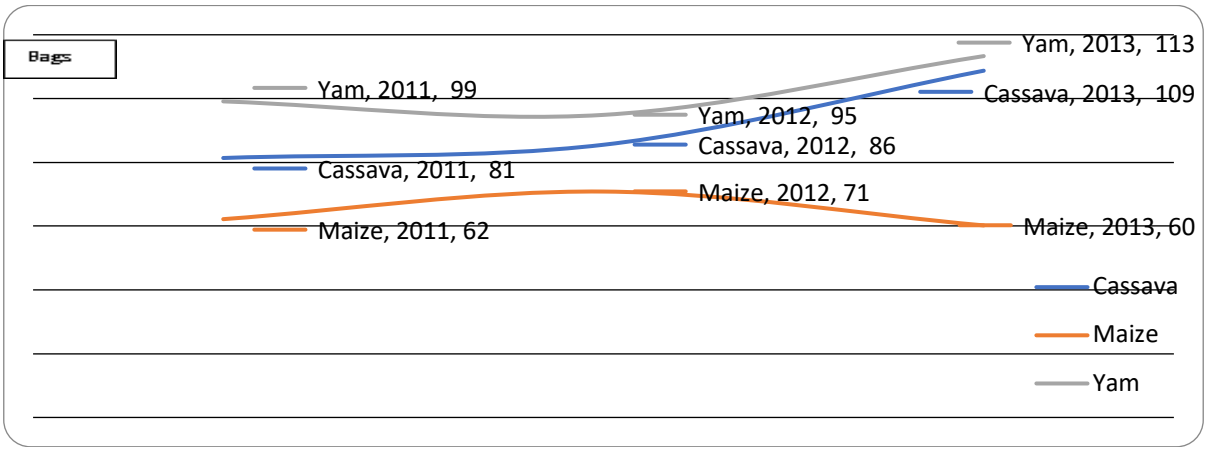
- The farm land size used to cultivate the cassava, maize and yam has slightly increased in 2013 compared to 2012 and 2011.
- On the average, a farmer used 2.4 acres, 2.3 acres and 2.3 acres of land to cultivate yam, maize and cassava respectively, as compared to 2.2 acres for each of the crops in 2012.

Figure 38: **Average Quantity (bags) of the 3 most cultivated crops, Harvested between 2011 and 2013**



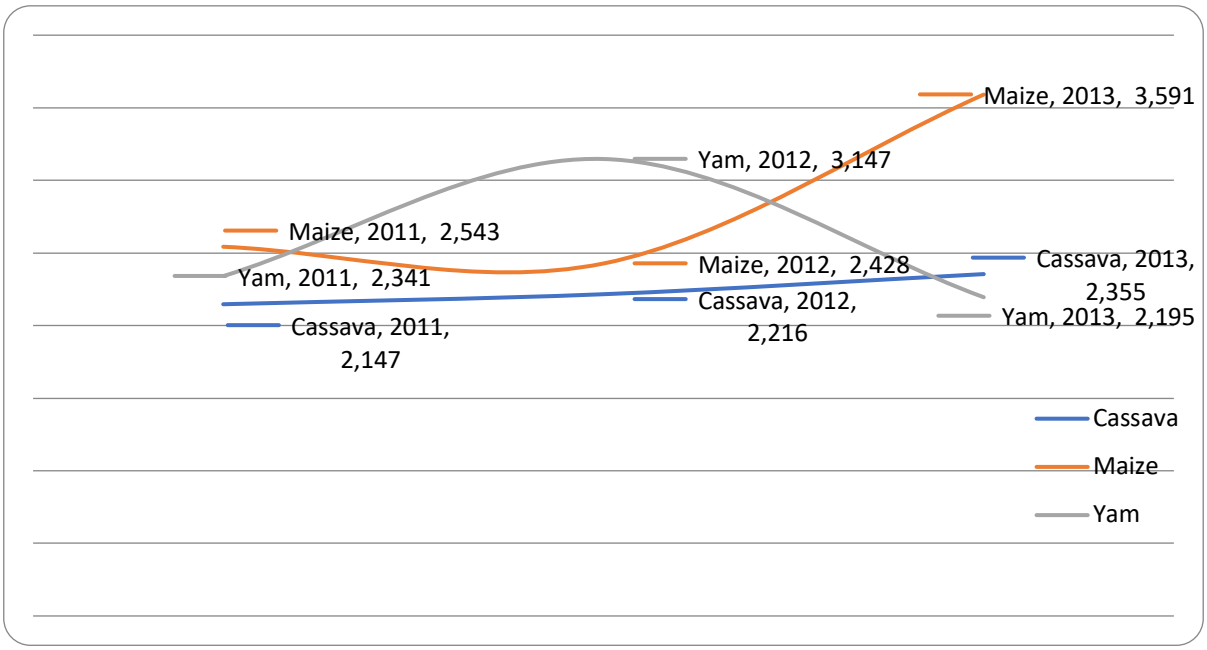
- The average quantity of cassava, maize and yam harvested increased in 2013 compared to the 2012 and 2011.
- On the average, a farmer harvested 110 bags of yams, 104 bags of cassava and 51 bags of maize in 2013. Not this much was recorded in 2012: yam (88 bags), cassava (91 bags) and maize (50 bags) were harvested.

Figure 39: **Average Quantity (bags) of the 3 most cultivated crops, sold between 2011 and 2013**



- The average quantity of cassava, maize and yam sold increased in 2013 compared to the 2012 and 2011.
- On the average, a farmer sold 113 bags of yams, 109 bags of cassava and 60 bags of maize in 2013. Not this much was recorded in 2012: yam (95 bags), cassava (86 bags) and maize (71 bags) were sold.

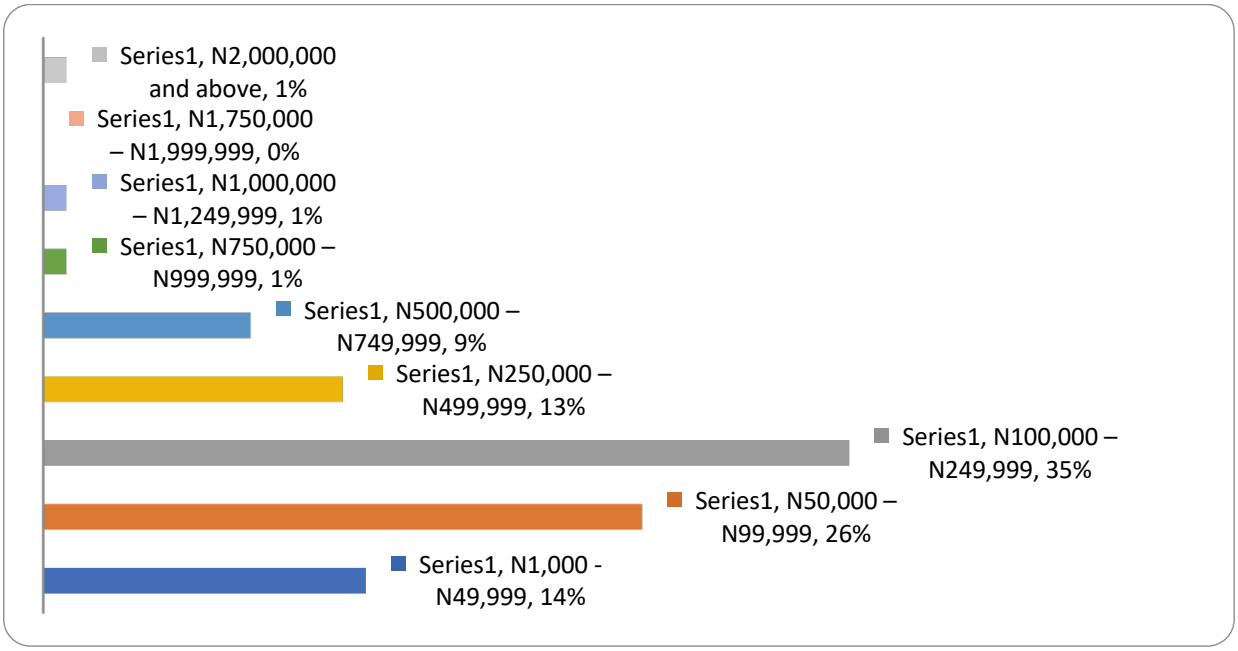
Figure 40: **Average Unit Price (Naira) of the 3 most cultivated crops, between 2011 and 2013**



Naira

- The average unit price of maize increased in 2013 (N3,591) compared to the 2012 and 2011 (N2,428 and N2,543).
- The average unit price of yam reduced in 2013 (N2,195) compared to the 2012 and 2011 (N3,147 and N2,341).
- The average unit price of cassava slightly increased over the years: N2,355 in 2013, N2,216 in 2012 and N2147 in 2011

Figure 41: **Estimated yearly profit in farming business**



4 out of every 10 farmers can each be estimated to make between N100,000 – N249,999 yearly as profit, and about a quarter (26%) make between N50,000 – N99,999 as their yearly profit.

Table **60** *Estimated yearly profit in farming business*

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	308	100%	162	100%	146	100%	164	100%	144	100%
N1,000 - N49,999	42	14%	16	10%	26	18%	28	17%	14	10%
N50,000 – N99,999	81	26%	34	21%	47	32%	43	26%	38	26%
N100,000 – N249,999	107	35%	57	35%	50	34%	50	30%	57	40%
N250,000 – N499,999	41	13%	27	17%	14	10%	26	16%	15	10%
N500,000 – N749,999	27	9%	20	12%	7	5%	12	7%	15	10%
N750,000 – N999,999	3	1%	2	1%	1	1%	1	1%	2	1%
N1,000,000 – N1,249,999	4	1%	4	2%	0	0%	3	2%	1	1%
N1,750,000 – N1,999,999	1	0%	1	1%	0	0%	0	0%	1	1%
N2,000,000 and above	2	1%	1	1%	1	1%	1	1%	1	1%

- More farmers in Delta state (40%) than Edo state (30%) estimated the yearly profit in farming to be N100,000 – N249,999.
- More female farmers (32%) than male farmers (21%) estimated the yearly profit in farming to be in the range of N50,000 – N99,999.

- On the general, the average yearly profit reported in a business like farming is N214,152. The male and female farmers reported an average of N274,647 and N143,490 respectively. Farmers in Edo and Delta state reported an average of N 225,830 and N 200,296 respectively.

Table **61** *Ability to save from farming activities*

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Able to save	350	88%	173	87%	177	89%	167	84%	183	92%
Not able to save	28	7%	14	7%	14	7%	19	10%	9	5%
Can't really say	22	6%	13	7%	9	5%	14	7%	8	4%

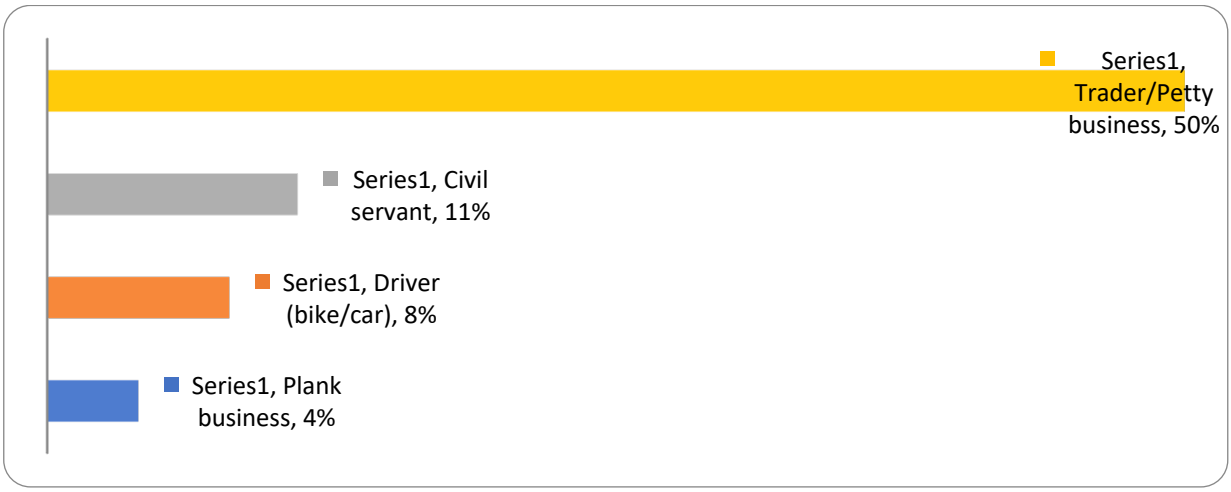
Many of the farmers (88%) are able to save from their farming business.

Table **62** *Other sources of income apart from farming*

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Have other sources	201	50%	96	48%	105	53%	93	47%	108	54%
Do not have other sources	199	50%	104	52%	95	48%	107	54%	92	46%

Half (50%) of the farmers have other sources of income apart from their farming business.

Figure 42: **The Four other major sources of income for the farmers**



- Among the farmers who have other sources of income, half (50%) of them are traders or do some form of petty businesses. Following this are civil servants; 11%, drivers (bikes/cars); 8% and then plank businesses; 4%

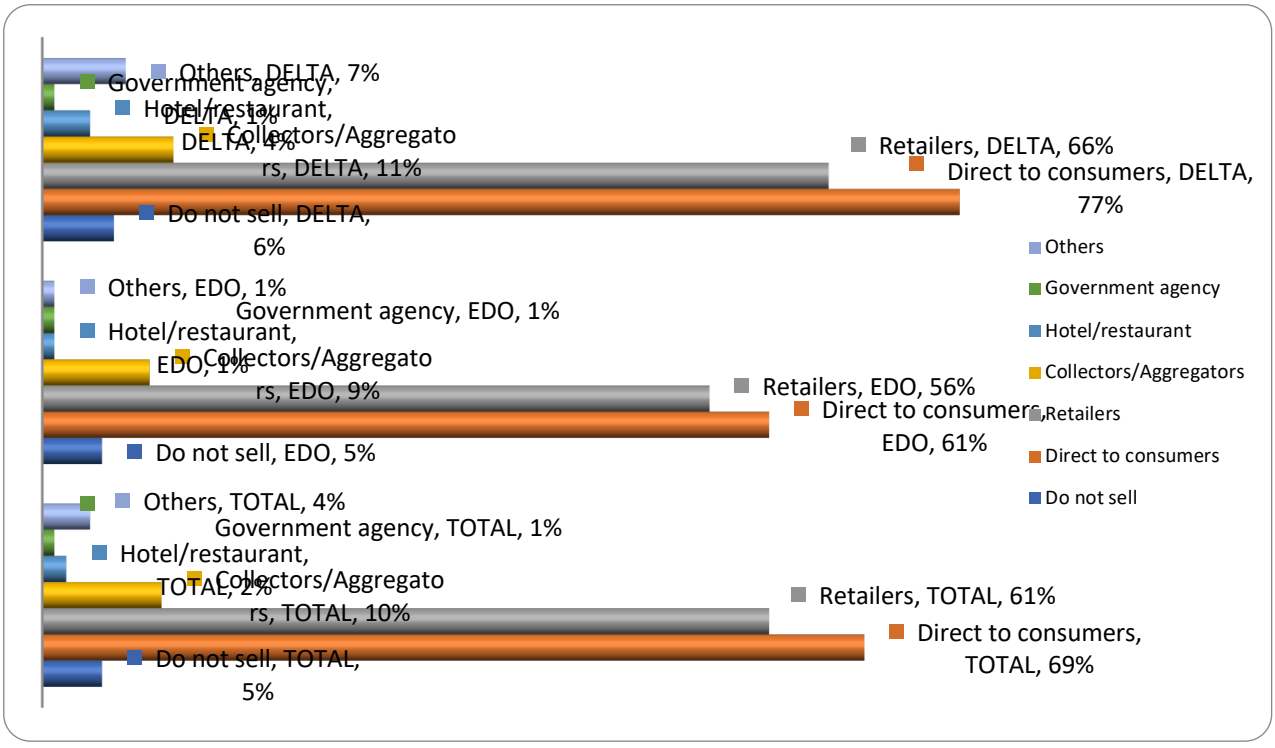
- Other sources were reported by some farmers, though in smaller percentage. They include: mechanic, security personnel, teacher, bricklayer, janitor, labourer, electrician, tailor, hair dressers etc

Table **63** *Who Farmers sell their agricultural products to*

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	400	100%	200	100%	200	100%	200	100%	200	100%
Do not sell	20	5%	14	7%	6	3%	9	5%	11	6%
Direct to consumers	276	69%	135	68%	141	71%	122	61%	154	77%
Retailers	243	61%	122	61%	121	61%	112	56%	131	66%
Collectors/Aggregators	39	10%	21	11%	18	9%	17	9%	22	11%
Hotel/restaurant	9	2%	6	3%	3	2%	2	1%	7	4%
Government agency	2	1%	1	1%	1	1%	1	1%	1	1%
Others	14	4%	8	4%	6	3%	1	1%	13	7%

More of the farmers sell their agricultural products directly to consumers (69%), closely followed by the retailers (61%).

Figure 43:Those who Farmers sell their agricultural products to



1 out of every 10 farmers sells to aggregators/collectors.

Table **64** *Reasons Farmers do not sell agricultural products*

	Total		Gender				State			
			Male		Female		Edo		Delta	
Total	20	100%	14	100%	6	100%	9	100%	11	100%
Subsistence farming	18	90%	12	86%	6	100%	9	100%	9	82%
Lack of access to market	1	5%	1	7%	0	0%	0	0%	1	9%
Lack of storage facilities	1	5%	1	7%	0	0%	0	0%	1	9%

9 out of every 10 farmers who do not sell their agricultural products practice subsistence farming.

4 CONCLUSION AND RECOMMENDATION

The findings from this baseline study have revealed valuable information from knowledge and use of agricultural inputs, GAP, sales and income and the gender perspectives on agric-practices in parts of Edo and Delta states.

There is a high demand for agrochemicals from retailers. However, on the supply side, only a few producers of agrochemicals were identified at the locations of study. This is the same for fertilizers and hybrid seeds. Limited access to producers means that retailers have to purchase at whatever price the few companies are willing to sell thereby driving the price further upwards. Thus, it can be deduced that the agric-inputs market is wide open for new entry to reduce the monopoly in the market.

Following a wide gap of inaccessibility (which has transcended to limited use) of hybrid seeds especially among the farmers, there is still a lot to be done in terms of scaling up the level of access to agricultural inputs. Also, crucial is the knowledge on the importance of use of these agricultural inputs; farmers need to be enlightened. Other areas calling for knowledge among the farmers include their practice of irrigation and cropping methods.

Generally, many farmers do not buy seeds or hybrid seeds, and when they do it is only occasionally. One reason for this is that the use of hybrid seeds for improved planting is still very new in the Nigerian market and little is known. Sadly, some retailers either do not sell or know much about hybrid seeds, or so cannot give advice to the farmers. This lack of knowledge about hybrid seeds and its importance in agricultural practices needs to be addressed.

Retailers and sprayers provide information to farmers on GAP. However, only a few of the retailers access the information from formal channels such as attending agricultural programmes, trainings and from agric-extension workers. Many retailers only provide second hand information gleaned from instruction manuals or labels of agrochemical containers, materials from the internet, and informally from parents or colleagues. This is a cause for worry, as some of this information may be wrong depending on the source, and even when correct, the ability of the retailer to understand and interpret them appropriately may also be an issue.

On the part of the farmers, their access to knowledge is also a call for worry, considering their very limited access to agric extension workers or any formal source of education and enlightenment. Hence, farmers are left to depend on other farmers for knowledge and advice on agricultural inputs and GAP.

It is evident that the farmers are open to knowledge and adoption of new methods and ideas, considering that most of the farmers who gained knowledge from previous trainings actually changed their farming methods and practices.

Not all the retailers/sprayers are aware of the GES program. The program is also faced with challenges of varying levels, especially in terms of access to information. The government is creating better publicity about the programs for the farmers, as the agro-dealers have had to take up that responsibility. The retailers also complained that they do not get timely services.

Although there are many channels for the retailers to access information, the government (at all levels) is still a major provider of extension services.

The prices and sales of fertilizers are also affected by the government's intervention program. The federal government's GES scheme bypasses middlemen such as retailers in distributing subsidised fertilizer to farmers. Similarly, some of the retailers also think distribution of fertilizer is heavily politicized, as politicians often give farmers free fertilizers in order to gain votes during elections. This has a direct effect on market price of fertilizers, volume of sales, and profits.

According to the retailers, farmers mostly buy fertilizers around February and May. Normally, farmers buy fertilizers during planting seasons, which may vary all year round depending on the type of crops grown. During rainy season, they buy the granular type so that it dissolves easily, while during dry season, they buy Folia (the liquid form). Some farmers request for larger sizes, such as a 4 litre pack of liquid fertilizer which is currently not available in the market.

Findings from the FGDs also revealed the common crops planted in study locations is a combination of both subsistence and cash crops such as cocoa, pineapple, plantain, cassava, and yam. However, many of the farmers still adopt manual practices such as the use of hoes and cutlass. Bush burning is still a regular practice.

The adoption of technology for improved farming is generally low among the farmers. In fact, many of the farmers have never had any formal agricultural training; they still practice the crude methods of farming. They depend on channels such as retailers, the radio and television or from family members and co-farmers to learn new farming techniques. Unfortunately, this may not bring about the best outcome, as some of the sources also practice crude methods or depend on other informal means for information.

Many of the farmers never had any formal agricultural training, so they still practice old methods of farming. Besides depending on others for information on GAP, they also learn from the radio and television. Even when there are new ways or methods of agricultural practice, many farmers still depend on the aforementioned channels.

Akin to the lack of use of hybrid seeds, many of the farmers do not use fertilizers though some claim to know the benefits.

The female farmers across all locations affirmed the significant roles women play in the sector, though they are outnumbered by men. While some of them decry unfair socio-cultural perception about women, some of them responded they are satisfied participating in the agricultural sector and do not feel intimidated by their male counterparts.

In terms of land ownership, some female farmers do not have issue of farm ownership (as observed in Okada) while others claim that they need to get approval from village head and elders to get permission for use even on their inherited lands (case of women in Kwale).

From the observations in this baseline study, the following recommendations are suggested:

- First, more needs to be done in terms of knowledge transfer to the retailers/sprayers of agricultural inputs and farmers. Evidently, both stakeholders still know little about hybrid seeds, the same for GAP and agrochemicals. One way to achieve this is through

quality agric-training programs and events. In addition, the partnership between retailers/sprayers and farmers should be further strengthened as an entry point of intervention in engaging farmers through retailers/sprayers.

- Then an intervention to increase availability of agricultural inputs to retailers should be pursued. This could be by floating agric-input producing companies or encouraging private investors to do so. These inputs should be made readily available to farmers as well so that there is no delay in planting seasons.

- Similarly, agric-input companies should consider packaging fertilizers and other agrochemicals in sizes that are not readily available in the market, but in high demand.

- Lack of education on the part of the retailers may pose some challenges especially in understanding and communicating GAP to farmers. Some of these retailers may not understand instructions manuals or labels of agrochemical containers, and the correct applications; as a result providing poor quality or harmful advice on use of the chemicals to farmers. Therefore, quality trainings or some level of formal education may assist these retailers in ensuring GAP can be utilized to best advantage.

- Since farmers depend on each other for information, an intervention program could be designed to make this a formal event whereby farmers engage to share information and best practices, especially impacts or experience from using different or specific inputs.

- The different challenges facing the Growth Enhancement Support (GES) program should also be addressed. The program has been marred by similar challenges across Nigeria and should be critically evaluated. The engagement of the private sector in the distribution and delivery of fertilizers and other inputs directly to farmers must be strengthened, and inputs must be delivered on time.

- In regards to the female farmers, some of them also engage in other income generating activities apart from farming. Overall, there is need to promote entrepreneurship among female farmers to enhance their income-earning capacity through skill acquisition training, and resource supply support. Participation in associations should also be encouraged, as these also bring other benefits of social capital.

ANNEX 1: IN-DEPTH INTERVIEW (IDI) GUIDE – RETAILERS AND SPRAYERS

	PROJECT 1284 **PROJECT MADE** **IN-DEPTH INTERVIEW (IDI) GUIDE** **- RETAILERS AND SPRAYERS**

OBJECTIVE

The aim of this discussion is to gather background information about practices of crop protection products, fertilizers and seeds. This will also include procedures and information on good agricultural practices from the view point of the retailers/sprayers.

INTRODUCTION

- Self introduction: Your name, the research company you work with, a brief description and intention of what the study is all about.
- Retailers/Sprayers are pre-recruited. So, confirm you are speaking with the right person.
- Brief explanation of reason for the discussion.
- Explain reason for audio recording and assure on issue of confidentiality.
- Let them know there is no right or wrong answer. Sincere response based on their knowledge and practices is what is highly needed.
- Let participants know that you will be willing to pause at any point at which they need to attend to customers and continue after they are done.

	QUESTIONS
General Discussion	• Ask for retailer/sprayer's..... - name - age or age group - highest educational level attained - job description - work address (remember the retailer/sprayer is not expected to be a salaried employee) • Ask for type of **agricultural inputs** retailer/sprayer deal with • How long has he/she been a retailer/sprayer of agricultural inputs?

TOPIC	**MAIN QUESTIONS**

CROP PROTETCTION PRODUCTS (CPP)/AGROCHEMICALS	• What type of agrochemicals you know of? • Describe the type of agrochemicals you sell/spray • How well do farmers buy/spray agrochemicals? • What type of agrochemicals do farmers buy/spray **more.** Ask for the company that produces the agrochemicals. • What time of the year do farmers **mostly** buy/spray these agrochemicals? • What are the available pack sizes of these agrochemicals? • Are farmers are pleased with the available sizes or are there preferred sizes that are not available? • How much do farmers buy the agrochemicals (pesticides, herbicides, fungicides). Ask for the prices of the different packs and sizes. • Do you give farmers advice on the importance of agrochemicals? Do farmers follow these advice?
FERTILIZERS	• Describe the type of fertilizers you know of • Describe the type of fertilizers you sell/spray • How well do farmers buy/spray fertilizers? • What the type of fertilizers do farmers buy/spray **more**. Ask for the company(s) that produce the fertilizers. • What time of the year do farmers **mostly** buy/spray these fertilizers? • What are the available pack sizes of these fertilizers? • Are farmers pleased with the available sizes or are there preferred sizes that are not available? • How much do farmers buy the fertilizers. Ask for the prices of the different packs and sizes. • Do you give them advice on the importance of fertilizers? Do farmers follow these advice?

SEEDS	• Describe the type of seeds you know of • What type of seeds do you sell? • How well do farmers buy hybrid seeds? • What type of seeds do farmers buy more. Ask for the company(s) that produce the seeds. • What time of the year do farmers mostly buy these hybrid seeds? • What pack/measurement sizes of these seeds are available? • Are farmers pleased with the available sizes or are there preferred sizes that are not available? • How much farmers buy the seeds. Ask for the prices of the different packs and sizes. • Do you give farmers advice on the importance of hybrid seeds? Do farmers follow these advice?
SOURCE OF INFORMATION ON THE USE OF GOOD AGRICULTURAL PRACTICE (GAP)	• Do you give advice to farmers on agricultural inputs (how often?) • How do you come about the advice you give to farmers • When there are new ways or methods of good agricultural practice, how do you upgrade your knowledge? • Have you ever attended a training that would help you give better advice to farmers on agricultural practices? • If yes, who organised the training and when? • What were the things taught at the training? • Have you ever been a farmer at one time or the other? • Have you heard of the GES (Growth Enhancement in State) scheme; using sms codes for farmers to buy at government subsidised rates? • Are there challenges you are experiencing over GES? If there are, what are these challenges?
Sales and Income **(Retailers only)**	• In a business like yours, what is the average turnover on the business in a year? • How many litres of pesticides do you sell in a month? • How many litres of herbicides do you sell in a month? • How many packs of seeds do you sell in a month? • How many containers of fertilizers do you sell in a month? • In a business as yours, like how much profit does the business bring? Say monthly. • Do you have other businesses that you do beside selling

	agrochemicals? • Do you actively try to go out and get more customers? • If yes, how?
Sales and Income **(Sprayers only)**	• How many containers of pesticides do you spray in a month? • How many containers of herbicides do you spray in a month? • How many containers of fertilizers do you apply in a month? • In a business as yours, like how much income does the business bring? Say monthly. • Do you have other businesses that you do beside spraying of CPP? • Do you actively try to go out and get more customers? • If yes, how?

THANK YOU FOR YOUR TIME

ANNEX 2: FOCUS GROUP DISCUSSION (FGD) GUIDE - FARMERS

	PROJECT 1284 **PROJECT MADE** **FOCUS GROUP DISCUSSION (FGD) GUIDE - FARMERS**

OBJECTIVES

The aim of this discussion is to gather background information about farmers, their practices (on crop protection products, fertilizers and seeds), procedures and information on agricultural practices.

INTRODUCTION

- Self introduction of moderator and other researchers present.
- Brief explanation of reason for the group discussion.
- Explanation for the use of audio and video recording and assure on issue of confidentiality.
- Declare that there is no right or wrong answer as we are all learning from each other.
- Emphasize need for active participation.
- Request participants switch of their mobile phone and explain reason.
- Self introduction: name, farm size and crop(s) participants plant on their farms.

BREAKING THE ICE

- What is the weather like at the moment?
- How enjoyable is the weather?
- How does the weather affect your daily activities?
- What would you say you like most about this community?

GENERAL DISCUSSION

- For how long has each of the participants been farming?
- Find out the various farming seasons in the community. How many seasons are in a

year? How many months make up a season? Ask for the specific season of specific crops.

- Which crops do farmers currently plant on their farm?
- Let participants describe the cropping method(s) they practice
  - ✓ Probe fully on intercropping and the crops they plant together.
- Find out the number of people working on their farm (full time or part time/casual, males/females, any family members)
- Let participants describe the tools or implement they have on their farm
  - ✓ Probe fully for types, quantity, cost and where they get them.

CROP PROTECTION PRODUCTS (CPP)/AGROCHEMICALS

(Explain to participants the meaning of CPP and agrochemicals (pesticides, herbicides, fungicides))

- How do participants clear their land for farming? Let them describe
- Let participants describe how they prepare their land for planting
- Participants should describe type of agrochemicals (pesticides, herbicides, fungicides) they know
- Let participants describe the type of agrochemicals they **use,** and the company(s) that produce them
  - ✓ Probe for other company(s) that produce agrochemicals and if participants use them.
- Let participants describe what they use these agrochemicals for
  - ✓ Probe for pesticides, herbicides, etcthey use on**specific crops** they plant
- When do participants **mostly** use these agrochemicals?
  - ✓ Probe for pesticides, herbicides etc on **specific crops** they plant
- In what pack sizes these agrochemicals come, let participants describe.
- How pleased are farmers with the available sizes or are there preferred sizes that are not available? Probe fully
- How much do participants buy the agrochemicals (pesticides, herbicides, fungicides). Ask for the prices of the different packs and sizes.
  - ✓ Let participants describe how many containers of pesticides they use in a farming season
  - ✓ Let participants describe how many containers of herbicides they use in a farming season
- Where do farmers get advice on the importance of agrochemicals? Do farmers follow this advice?
- Let participants describe how they store their crops after harvesting
  - ✓ Probe fully on how they control pest during storage

- Let participants describe their accessibility to agrochemicals

FERTILIZERS

- What do participants understand are the benefit of using fertilizers? Let them describe
- Participants should describe the type of fertilizers they buy; the composition, the pack sizes, and company(s) that produces the fertilizers.
    - ✓ Probe fully for other companies that produce fertilizers.
- How much do they buy the fertilizers? Ask for the prices of the different packs and sizes. (if there are)
- Where do farmers buy their fertilizers? Find out
- How pleased are farmers with the available sizes or are there preferred sizes that are not available? Probe fully
- What time of the year (or planting season) do farmers buy these fertilizers **more?**
- Let participants describe what type of crops they apply fertilizers on
    - ✓ Probe for the type of fertilizers used on the**specific crops** they plant
- Let participants describe how many bags of fertilizers they use in a farming season
- Apart from the ones they use, are there other varieties of fertilizers available? Probe fully for the varieties if there are
- How do farmers get advice on the use of fertilizers? Do they follow this advice?
- Let participants describe their accessibility to fertilizers

SEEDS

- Let participants describe the type of seeds they use for planting? How are the seeds packaged?
- Let participants describe what they know about hybrid seeds? What are the benefits of using hybrid seeds?
- Are farmers willing to buy hybrid seeds? Ask for the company(s) that produces the hybrid seeds
    - ✓ Probe fully for other companies that produce hybrid seeds.
- Where do farmers buy their seeds from?
- Find out if hybrid seeds are available in the open market?
- What time of the year do farmers buy seeds more? In what sizes and measurements do these seeds come?
- Find out how much they buy the hybrid seeds. Ask for the prices of the different pack sizes.
- Find out how many packs/measurement of seeds they use in a farming season
- Who gives them advice on what type of seed to use and how to use the seeds? Do

farmers follow this advice?

- Let participants describe their accessibility to hybrid seeds

SOURCE OF INFORMATION ON THE USE OF GOOD AGRICULTURAL PRACTICE (GAP)

- Participants should describe what they understand as good agricultural practice
- Let participants describe their access to and use of good agricultural practice
- Are there **challenges facing their access** to and use of good agricultural practice? Let them describe
- How do farmers get information on good agricultural practice? Probe for the source
- When there are new ways or methods of agricultural practice, how do farmers upgrade their knowledge?
- Find out if participants have attended training on GAP. If yes, who organised the training, when and where?
- What were they taught at the training? Let them recall and summarise what they were taught
- Find out if and what participants have heard about GES (Growth Enhancement in State) scheme; using SMS codes for farmers to buy agricultural inputs at government subsidised rates
- Are there challenges farmers are facing using GES? If there are, what are these challenges?

SALES AND INCOME

- Let participants describe what the average turnover of a typical farm is, yearly in their community.
- Find out if participants have other businesses that they do besides farming

FEMALES ONLY

- What are the roles of women in the distribution channel of agricultural products?
- Do women have issues with farm ownership and farming? What are the issues?
    - ✓ Find out how these issues are resolved. Ask them to suggest practical ways
- Find out if their gender poses a challenge to accessibility of agricultural inputs.

End discussion. Thank participants.

ANNEX 3-1: REFERENCES

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ANNEX 3-2: CHECKLIST OF QUESTIONS FOR FOCUS GROUP DISCUSSION

ANNEX 3-3: COMPANY PROFILE: AGENCY CAPABILITY AND EXPERIENCE

Strategic Research and Management (STREAM) Insight is a social and market research agency, managed by seasoned social research professionals and new generation market research experts.

STREAM Insight is development oriented, and has been highly instrumental in providing technical support and data driven decisions for programme implementers and policy makers in different sectors, including many DFID supported projects, United Nations, federal government parastatals etc. We operate across the West African sub-region.

Sectors we cover include: Government parastatal, Development partners, FMCGs, Media group, Telecommunication, Banking and Finance, Oil and gas, Health etc. Our years of experience have covered: Usage and Attitude Survey, Brand Health trackers, Retail Audit and Retail Census studies, Media and advertising studies, Product tests, Consumer segmentation, Stakeholders analysis, Opinion polls for governments and countless number of social research projects etc.

STREAM Insight is a member of the Social Research Association (SRA), United Kingdom and also a member of Market Research Association (MRA) Washington DC. Our agency duly abides by the world class code of conducts of these two associations in implementing our research. STREAM Insight received the 2014 African Heart Beat Award in recognition of UNIQUE SERVICE IN SOCIAL RESEARCH.

STREAM Insight is a partner of Canback and Company LLC (Boston, USA) and their representative in West Africa. Canback and Company is a leading management consulting firm that leverages on predictive analytics and operates on a global scale to assess market opportunities for more than 500 clients in over 45 countries. Canback developed the Global Income Distribution Database (C-GIDD), the world's most comprehensive and detailed database for GDP and income distribution data. The dataset covers 211 countries, 693 subdivisions (states, provinces, etc.) and 1022 major cities from 1998 till 2018.

STREAM Insight has offices and field managers across 36 states in Nigeria, with resident interviewers and supervisors who fully understand their terrain.

Strategic Research & Management (STREAM) *Insight*

RC 886437

7A, Ikorodu Road, Maryland, Lagos State, Nigeria.
Tel: + 234 1 7390041,
+ 234 803 576 2835, +234 805 334 1812,
a.opawale@streaminsightonline.com
info@streaminsightonline.com
www.streaminsightonline.com

: **STREAM INSIGHT**

: **@stream_insight**

: **STREAM Insight**

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ANNEX 3-4: PICTURE GALLERY

The Lead Consultant trains the field team

A cross-section of the data collectors during the training in Asaba

The Edo State Team

Consultants and Supervisors

The Delta State Team

The Female FGD in Okada, Edo State

The Male FGD in Agbor, Delta State

The Male FGD in Okada, Edo State

The Female FGD in Kwale, Delta