

PrOpCom

Making Nigerian Agricultural Markets Work for the Poor

Monograph Series # 32

Soya Value Chain Baseline Survey

By

Submitted by
New Nigeria Foundation

September, 2007



Funding for this programme is provided by the United Kingdom's
Department for International Development (DFID)

40 Mississippi Street, Maitama, Abuja, Nigeria • Tel: +(234) 9 413 8291/2 • Fax: +(234) 9 413 82

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Final Report on the

Soya Value Chain Baseline Survey

**Submitted by
New Nigeria Foundation**

**4c Louis Solomon Close,
Off Ahmadu Bello Way,
Victoria Island, Lagos.**

Phone: 01-461 9688/9; 08023231430

Fax: 01-461 3294

**Email: new_nigeria@yahoo.com
contact@nnfng.org**

SEPTEMBER 2007

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SOYA VALUE CHAIN BASELINE SURVEY FINAL REPORT

EXECUTIVE SUMMARY

The New Nigerian Foundation and Development Associates were commissioned to carry out a baseline survey of Soya production in four states namely Kaduna, Kano, Benue and Plateau States. Soya cultivation in Nigeria has grown over the years as a result of awareness of its economic benefits and it's versatility in formulation of both human and animal foods. It has some 365 applications and is therefore in high demand not just in Nigeria but worldwide which has resulted in expansion of its production to increase supply. The main objectives of the study is to provide a baseline against which progress towards programme objectives and targets can be measured and provide a basis of comparison between different sites where activities are undertaken. The study incorporated a survey of farmers, processors and traders/marketers participating in soya activities in Kano-Kaduna-Benue Corridor. Techniques adopted included Focus Groups Discussions, Key Informant Interviews, Case Studies, and Enumerative Survey of farmers, processors and traders/marketers in the producing communities. In all, 34 FGD sessions were held for farmers, processors and traders/marketers. These are shown in the table below:

Breakdown of the 1st set of FGDs

Target group	Kaduna	Benue	Plateau	Kano	Total
	FGDs	FGDs	FGDs	FGDs	FGDs
Large scale traders	1	1	1	1	4
Small scale traders	1	1	1	1	4
Household processors	1	2	1	1	5
Industrial processors	1	0	1	1	3
Artisanal processors	2	2	1	1	6
Farmers	2	4	1	1	8
Farmers/Traders	1	1	1	1	4
TOTAL	9	11	7	7	34

A team of four coordinators, four supervisors and four assistant supervisors conducted the FGD sessions in the four different states between July 20 and 24, 2007. Supervisors and Assistant Supervisors in Kaduna and Benue States held 9 and 11 FGDs respectively while Supervisors and Assistant Supervisors in Kano and Plateau States held 7 FGDs each. Each session lasted an average of 2 hours. Prior to the discussions, mobilization of stakeholders was done between July 17 and 19, 2007 with the assistance of ADP extension officers and community/village leaders, market/trade, processor groups/associations. Suitable times for the discussion sessions were fixed during the mobilization.

For the enumerative survey, 588 questionnaires were administered. However, due to some errors in data collection, which were identified during data checking and cleaning, a total of 579 questionnaires were analysed. These are shown in the table below:

Breakdown of the Enumerative Survey

Target Group	Kaduna	Benue	Plateau	Kano	Totals	Comment
Traders/ Marketers						
Bean (traders/ware	49	31	26	20	126	The 3 market levels as well as

Target Group	Kaduna	Benue	Plateau	Kano	Totals	Comment
house owners, farm gate agents, market middlemen						traders/middlemen from the 3 categories identified were included in the survey.
Intermediate-Products (raw oil, cake, meal)	14	6	10	10	40	Middlemen/traders at the level of processing, who purchase cake and meals were included
End Products (refined oil, animal feed, consumer product)	12	6	11	10	39	Primary, feeder and central markets where end products are sold were included in the survey
Processors						
Industrial Oil and feed mills	6	0	2	3	11	Processors from Kano, Kaduna, Zaria and Jos, were included.
Artisanal processors	21	15	26	22	84	Daddawa, soy milk, cheese processors etc most of who are women were included
Household Processors	11	10	14	9	44	Daddawa, soy milk, cheese processors etc, most of who are women were included
Farmers						
Farmers	75	70	48	42	235	Small, medium and large-scale farmers, disaggregated by gender and age were included
Total	188	138	137	116	579	

A team of four supervisors, four assistant supervisors and thirty-two enumerators conducted the enumerative survey in the four states between July 26 and July 31, 2007.

The major stakeholders in the Soya value chain in Kaduna, Kano, Benue and Plateau States are farmers, household processors, artisanal processors, industrial processors, soya bean traders, intermediate traders and large-scale traders.

Summary of background information on stakeholders

a. FGDs

Farmers

The FGDs with farmers had between 12 and 20 persons in each FGD with participation of only small numbers of women, except in Benue State. The ages of participants in the FGDs were between 20 and 70 years with average ages being mostly in the 40s. Most of the farmers who took part in the FGDs had lived significant parts of their lives in the communities and had been involved in soybean cultivation most of their adult lives.

Farmer-Traders

Three (3) FGDs were carried out in Kaduna, Benue and Kano States for farmers who are also traders but in Plateau State, an FGD was held with intermediate traders instead because all the farmers identified in the survey were also involved in soybean trading. Numbers of participants at the FGDs in the four States ranged from 8 in Plateau to 24 in Kaduna. Participants were mainly men, who had spent most of their lives in their communities, with ages ranging from 20 to 72 years. There were no female participants in the farmer-trader category.

Household Processors

Household processors usually process soya bean into soymilk, daddawa, awara and soy cake (fried and eaten). Five FGDs were held with this category with participation ranging from 7 to 16. The ages of participants were between 18 and 60 years with average ages being mostly in the 30s. Information obtained shows that household processors in Kaduna are predominantly married women aged between 26 and 35 years with 1 to 5 years experience in the business. Most of them had education up to secondary school level and earned between ₦50,000 to ₦100,000 annually. In Benue State, they were mostly married women aged between 18 and 50 years with 10 to 20 years experience in the business. The ages of household processors in Plateau state were between 18 and 55 years. They were mostly females with education up to secondary school level and had been in the business for 1 to 5 years with an estimated annual income of between ₦50,000 and ₦100,000. In Kano State, participants at the FGDs were all women with an average age of 31 years and with about 7 years experience in the business. Details of background information on household processors are provided in Table 6.

Artisanal Processors

Artisanal processors are mostly involved in the production of soymilk, daddawa, awara and soy cake (fried and eaten) in Kaduna and Benue states while in Kano and Plateau States, they were mostly involved in production of soya oil and soya cake for use in livestock feeds. Six (6) FGDs were held with artisanal processors with participation ranging from 6 to 14. The ages of participants in the FGDs were between 12 and 65 years with average ages being mostly in the 30s and 40s. In Kaduna, Benue and Kano States, artisanal processors were mostly females with little or no education. In Plateau State, the artisanal processors were mainly males with secondary education, having between 1 and 5 years experience in the business and an annual income between ₦500,000 and ₦1 million.

Industrial Processors

Industrial processors are mostly involved in the production of refined and unrefined soya oil and livestock feeds using soy cake. Most industrial processors in Kaduna State are 35 to 45 years old males with tertiary education, have been in the business for between 3 and 15 years and have an estimated annual income between ₦500,000 and ₦1 million. There are no industrial processors in Benue State. In Plateau State, there were two main industrial processors, Grand Cereal and ECWA Feeds. They have been in business for between 5 and 20 years. In Kano State, industrial processors were mainly males. Details of background information on industrial processors that participated in the FGDs are provided in Table 6.

Small-Scale Traders

Small scale traders are usually involved in the sale of soybean in mudus, tiyas and tins. In Kaduna State, they are predominantly females between the ages of 20 and 55 years with primary or secondary education and an average estimated income of less than ₦50,000. In Benue State, majority of participants were females with an average age of 40 years and an estimated annual income of ₦30,000. In Plateau State, they were females between the ages of 26 and 45 years with primary and secondary education and have been in the business for between 6 and 20 years having an estimated annual income between ₦50,000 and ₦500,000. In Kano State, they were mostly males between the ages of 38 and 50 years and have been in the business for up to 25 years with an estimated average annual income of ₦16 million.

Large-Scale Traders

Large scale traders are usually involved in the sale of soybean in 50kg and 100kg bags. In Kaduna State, they were mostly married men between the ages of 25 and 62 years. About 50% have secondary education and the other 50% have no formal education but had attended Arabic schools. The average annual income is between ₦50,000 to ₦100,000. In Benue State, they were mostly female with between 15 and 30 years' experience in the business and average annual income of ₦80,000. In Plateau State, the large scale traders were mainly males between the ages 26 and 55 years and mostly uneducated. They have been in the business for between 6 and 15 years with annual income ranging from ₦50,000 to ₦1 million. In Kano State, the large scale traders were mostly males between 34 and 51 years and have been in the business for up to 25 years with an estimated annual average annual income of ₦36.4 million.

b. Enumerative Survey

Farmers

Generally most soya farmers are married men between the ages of 26 and 45 living in rural and semi urban areas. Farming is the primary occupation of more than 80 percent of soya farmers in Kaduna, Benue and Plateau while only about 40 percent of soya farmers in Kano have farming as their primary occupation. The level of education of the farmers varied significantly from one state to another with the more educated farmers being in Benue and Kano where more than two-thirds of the respondents had completed secondary school. Most soya farmers in Kaduna (58%), Benue (90%) and Plateau (64%) are small holders with annual incomes of less than ₦100,000. Small holder farmers in Kano are much smaller proportionately (31%) and more than 20% of the farmers have annual incomes over ₦500,000. About 25% of the farmers in Kaduna also have annual income over ₦500,000. From cross-tabulation of data, only male farmers earn incomes above N500,000 per annum, except in Kaduna State where only 2 female farmers out of 15 in the category, earn more than N500,000 per annum. Whereas, majority of female farmers (90% in Benue, 64% in Kaduna, and 67% in Plateau) earn N100,000 or less per annum. There was only 1 female farmer in Kano, who earns between N100,000 and N500,000 per annum. These show that male farmers are generally richer than their female counterparts.

In terms of access to credit, majority of respondents across the income categories indicated that it was difficult to access credit. However, some farmers Benue and Plateau States, especially those with higher incomes tend to have easier access to credit where 100% of those whose annual incomes are between N100,000 and N500,000 in Benue State indicated that there was easy access to credit. Relating access to credit to gender, female farmers in Benue had easier access to credit than their male counterparts. In Kaduna and Kano States however, male farmers had easier access to credit than the female. More details are provided in Table 1.5 under Appendix 1.

Household processors

Generally most household processors of soya are married women between the ages of 26 and 55 years. Processing is the primary occupation of most of the processors in Benue and Kano while in Kaduna and Plateau, the processors are primarily traders. The level of education of the processors varied significantly from one state to another with the more educated processors being in Benue and Plateau where about half of the respondents had completed secondary school. Most household processors have estimated annual income of less than ₦100,000 except in Kano where about 33% earn between ₦100,000 and ₦500,000.

Artisanal processors

Both men and women all across the age groups are involved in processing soya at the artisanal level, practicing their trade in urban, semi urban and rural areas. In Kaduna state 90% are women while in Kano state 90% are men. In Plateau 47% are men and 53% are

women. More than 85% of the processors are married across the states except in Kaduna where only about 62% are reported as married. Processing is the primary occupation of about 95% of the processors in Kano while in Kaduna the processors are primarily farmers. People of all levels of education are involved in processing at the artisanal level in all the states. Most artisanal processors have estimated annual income of less than ₦500,000 except in Kano where about 23% earn between ₦500,000 and ₦1,000,000 and about 32% earn over ₦1million.

Industrial processors

Only men across the age groups are involved in processing soya at the industrial level, practicing their trade in urban areas. Processing is the primary occupation of all (100%) of the processors in Plateau and Kano while in Kaduna 17% of them are primarily processors, 67% are primarily traders and 17% are primarily civil servants. Only people with secondary education and above are involved in processing at the industrial level in all the states. Most industrial processors have estimated annual income of ₦500,000 or less except in Kano where about 33% earn between ₦1,000,000 and ₦3.5million.

Small-scale traders

Generally most soy bean traders are married men between the ages of 26 and 55 years living in rural and semi urban areas. Trading is the primary occupation of 71% of respondents in Benue, 74% in Kaduna, 90%, in Kano, and 62% in Plateau. The level of education of the bean traders varied from one state to another with the more educated traders being in Benue, Kano and Plateau where more than half of the respondents had completed secondary school. Most soy bean traders in Kaduna (55%), Benue (77%) and Plateau (81%) are small scale traders with annual incomes of less than ₦100,000. Soy bean traders in Kano are much smaller proportionately (40%) and more than 30% of the traders have annual incomes over ₦500,000. About 14% of the traders in Kaduna also have annual incomes over ₦500,000. Generally, about 50 percent of the traders had spent about eleven years or more in soy bean trade.

Intermediate Traders

Generally most intermediate traders are married men between the ages of 26 and 55 years living in rural and semi urban areas. Trading is the primary occupation of 71% of respondents in Kaduna, 67% in Benue, 60% in Plateau, and 40% in Kano. The level of education of the intermediate traders varied from one state to another with the more educated traders being in Benue, Kano and Plateau where more than two-thirds of the respondents had completed at least secondary school. Most intermediate traders in Kaduna (57%) and Benue (100%) have annual incomes of less than ₦100,000, while majority in Kano (60%) have annual incomes of between ₦100,000 and ₦500,000. About 30% of intermediate traders in Kano have annual income over ₦500,000.

Large-scale traders

Generally most large scale traders of soya products are married men between the ages of 26 and 55 years living in urban and semi urban areas. The exception is in Plateau where there are substantial proportions of the traders who are women, single, or less than 26 years old. The level of education of large scale traders is higher than those of small scale bean traders in all the states. Trading is the primary occupation of most of the respondents with varied annual incomes. The richer traders seem to be in Kaduna and Plateau.

Summary of Findings

a. Farming

- The farmers generally practice mixed farming and claim not to require chemical fertilizers when other crops are mixed with soya
- The farming operations undertaken by farmers involved in soybean production are land clearing, ploughing, harrowing/ridging, broadcasting/planting, weeding, harvesting threshing and winnowing. Most of the operations are undertaken manually using hoes and cutlasses.
- Most farmers plant soya between May and July
- There are generally about 4 varieties of soya. There is the popular local variety, two varieties from IITA (TGX 1448-2E and TGX1485), and one variety from IAR (Samsoy 2). Apart from the local varieties, the Samsoy variety is widely preferred across the States.
- Average yield is about 1.4MT/Ha in Kaduna, 700kg/Ha in Benue.
- No part of soya is wasted because the leaves and husk are used as feed for cattle, poultry and pigs.
- Most farmers indicated ready availability of improved seeds, fertilizer, and agro chemicals. However, not many of them can afford them.
- A large proportion of the farmers' produce is sold and the rest is either consumed or given out.
- Standard measures in soy beans trade include mudus, tiyas, tins, 25kg, 50kg and 100kg bags.
- A 100kg bag of soy bean sells for between ₦3,000 and ₦5,000, depending on season and State.
- Farmers have access to a wide range of means of transport to move their produce to the market. The most commonly mentioned are the truck, motorcycle, bus, taxi, cart, animal powered transport and head portage.
- Entry into Soya bean farming business is relatively easy across the States.
- Availability of credit is relatively poor. Farmers therefore fund their farming activities from personal savings, friends and family members.
- Farmers in Kaduna are faced with a number of challenges which include:
 - Poor storage of seeds due to lack of warehouses to store seeds before planting.
 - Inconsistent rainfall: Low rainfall affects yield substantially while excessive rainfall reduces quality.
 - Lack of credit.
 - Insecurity on the highways including armed robbery and other security issues.
 - Poor accessibility to inputs such as fertilizers, agro-chemicals, improved seeds and mechanization inputs.
 - Non-availability of tractors.
 - Inability to reach buyers.
 - Low pricing of soya products.
 - Poor or no access to credit facilities.
 - Lack of interest by the state government.
 - Birds and pest attack at germination period. This is coped with by use of mixture of locust bean powder with any insecticide and sprinkle to kill the insects. Also network the farm with audio cassette threads to make hissing noise which scares the birds.
 - The role of middlemen in determining the market price.
 - Splintering during threshing.
 - High cost of agro-chemicals and fertilizers, which makes them unaffordable to resource-poor farmers.
 - Low market demand, which discourages more production of soybeans.
 - Problem of cattle rearing in the community.

b. Processing

- Soybean is processed into soya oil, soy milk, soy cake (used in animal feed production), soy meal, daddawa and awara.
- The processed soya is marketed through definite routes to consumers.
- Processing of Soya has created alternative uses of the seed besides direct cooking for consumption.
- Household processors are mostly small operators who obtain soybeans from their personal farms and the local market and process into milk, cake/awara, daddawa cheese and soya soup.
- Processors use household and traditional equipment such as plates, aluminium pots, firewood, stoves but grinding of soybean is usually done by service providers using mechanical grinders.
- From 1 kg of soya bean which cost about N100, processors obtain about N300 worth of milk which is packaged in polythene bags for sale at about N100 for 25cl. The product is consumed daily.
- Artisanal processors are mostly women processing soya beans into soya cake, soya milk, soya oil and soya meal.
- They obtain soyabeans from their husbands' farms and the local markets, and sell the products from home and in the local market.
- There are household and artisanal processors in Benue but no industrial processors.
- Industrial processors are usually large scale operations processing soya into layers mash, growers mash, chick mash, broiler starter and finishers, and fish feed.
- Their main customers are feed millers and poultry businesses from Kaduna and other parts of the country.
- The equipment used by processors include milling machines, grinding machines, hammers, mixers, crushing machines, oil presses, cleaner, extraction plant, mixer, incline auger, oven, pelletising and refining equipment, packaging plants, lorries, trailers and pick-up vans.
- Accessibility to parts and maintenance are not problems for processors but funding of repair activities is usually problematic.
- Demand for soya products is high therefore there is usually no need for long term storage. However, there are warehouses available for unsold stock.
- Raw materials, considered relatively expensive, are identified as the biggest cost item.
- Challenges faced by processors include:
 - Erratic electricity and power supply which makes it difficult to extend the shelf life of soya products. To cope with this, processors consume whatever is not sold.
 - Preservation of their processed stock: The shelf life of milk and cake is a day and with no system for preservation, it is difficult to store.
 - Over heating during cooking can result in low quality product and there is no mechanism to mitigate it.
 - Delay in grinding can also lead to low quality products.
 - Credit is not available to processors.
 - Poor market.
 - High transportation costs.
 - Continuous increase in prices of petroleum products.
 - Cost of credit is high.
 - There are security issues on the high ways particularly armed robbery
 - There is multiple taxation by the various government agencies.
 - No support from government
- To cope with some of these challenges, processors rely on membership of cooperatives to which they make regular contributions and have access to interest free funds (on religious grounds) on rotational basis. The cooperatives also buy and supply soyabeans to members on credit.

c. Trading

- Small scale traders are predominantly women aged between 20 and 55 years with an average age of 38 years.
- The units of measure used in trading in soya beans are 100kg bags.
- Trading in soya is very lucrative and most traders who started trading in grains such as maize, rice, beans, and millet are now more involved in soya trading and believe that they will remain in the business.
- They use traditional methods of trading and marketing with basic measuring basins as their only tool/equipment.
- Traders store soya in trays, silos and bags and keep this at home and shop and some others store in the market and cover with tarpaulin.
- Intermediate traders trade in meal, cake, livestock feed and soya oil.
- The equipment used are weighing scales and mudus,
- Large scale traders are mostly males between the ages of 25 and 62 years with an average age of 43 years,
- Their customers are feed millers from within the states and others around the country, including Ibadan,
- Traders face a number of challenges which include the following:
 - Limited storage facilities and poor security in markets.
 - Continuous increase in prices of petroleum products lead to increases in transportation costs.
 - Lack of credit.
 - Security on the high ways is poor with high incidence of armed robbery and other problems. They cope with this by managing and supporting one another in cases of robbery.
 - Multiple taxation levied at the different levels of government.

1. INTRODUCTION

PrOpCom intends to implement a Soya catalytic activity in Kano, Kaduna, Benue, and Plateau States, which would contribute to removing constraints for efficient market operations and linking market actors to work together and serve one another on a sustainable basis. As a first step, PrOpCom implemented a survey of Soya activity in the 4 states, which provided the baseline against which progress towards project objectives and targets identified in the project log frame will be measured. Production in the corridor is based in Benue and Kaduna States, which are the two largest producers of Soya in Nigeria. Kano is the largest vegetable oil milling cluster in Nigeria, and a number of the mills do extensive soya processing. Many important mills in the corridor are located in Jos, Zaria and Kaduna. Large animal feed mills process some soya bean and also buy cake/meal from the oil mills for use in animal feeds. Important animal feed mills in the corridor are located in Kaduna and Jos. Many of the big animal feed mills and a number of oil mills are outside the corridor, but these provide a reasonable cross-section of the sector.

PrOpCom contracted the New Nigeria Foundation and Development Associates to develop and conduct the baseline survey and associated data collection for Kano-Kaduna-Benue Corridor Soya Value Chain. The baseline study incorporated an enumerator conducted survey of farmers, processors (household, artisanal (daddawa, soy milk, cheese), and industrial oil and animal feed mills, and traders/marketers. In addition there were key informant interviews and focus group discussions. These latter complemented the enumerator conducted survey, particularly by covering questions about why and how things happen, attitudes, etc. that are often difficult to get answers to in enumerator conducted surveys. In addition, a small number of case studies were implemented among a cross-section of farmers, processors and traders to determine costs of production and income information. In particular, participatory methods were used to identify representative candidates for these case studies.

The main objectives of the baseline survey were to:

- Provide a baseline against which progress towards programme objectives and targets identified in the log frame can be measured.
- Collect data related to all Objectively Verifiable Indicators (OVIs) in PrOpCom's log frame using a guide on the key OVIs from the log frame.
- Provide a basis of comparison between the different sites where catalytic activities are undertaken.

This report covers all activities in the implementation of this survey, which included two sets of Focus Group Discussions (FGDs), detailed enumerative survey carried out in the 4 focus States, Key informant interviews and case studies.

2. METHODOLOGY

The study was conducted by a team comprising 6 organisations that formed a consortium. The organisations have experience in conducting surveys and were allocated to undertake activities for which they have expertise in states where they have work experience. The consortium is led by New Nigeria Foundation (NNF) and Development Associates (DA). The composition of the consortium and their roles in the study are presented in Table 1.

Table 1: Members of the Consortium and their Roles

Role	Organisation	State of Activities	Activities
1 st Lead Firm	New Nigeria Foundation	All states	General coordination of the study Data analysis

Role	Organisation	State of Activities	Activities
			Report preparation Presentation at workshop
2 nd Lead Firm	Development Associates	All States	General coordination of the study Data analysis Report preparation Presentation at workshop
1 st Support Firm	Successory Nigeria Limited	Kaduna State	Stakeholders' mobilisation Participation in workshops FGDs Data Collection/ Enumeration Report writing
2 nd Support Firm	Knowledge Dynamics Ltd	Kano State	Stakeholders' mobilisation Participation in workshops FGDs Data Collection/ Enumeration Report writing
3 rd Support Firm	Cekard Associates	Benue State	Stakeholders' mobilisation Participation in workshops FGDs Data Collection/ Enumeration Report writing
4 th Support Firm	Cekard Associates	Plateau State	Stakeholders' mobilisation Participation in workshops FGDs Data Collection/ Enumeration Report writing

The support firms organised and undertook field work in the states as indicated in Table 1. Each support firm appointed a supervisor and an assistant supervisor for activities in its state of operation. The activities in the states were supported by 6 coordinators from the lead firms. The list of coordinators, supervisors and assistant supervisors is shown in Table 2.

Table 2: Project Personnel

Position	Name	Organisation
Team Leader	Prof. Femi Ajibola	New Nigeria Foundation
Assistant Team Leader	Mr. Olubunmi Adetunmbi	Development Associates
Data analyst	Prof. Francis Adesina	New Nigeria Foundation
Coordinator	Ms. Chikodi Amadi	New Nigeria Foundation
Coordinator	Mrs. Nike Kolawole	New Nigeria Foundation
Coordinator	Mr. Eyitope Aremu	New Nigeria Foundation
Coordinator	Mr. Tosin Oni	New Nigeria Foundation
Coordinator	Mr. Kayode Olode	Development Associates
Coordinator	Mr. Fatai Bakare	Development Associates
Supervisor (Kano)	Alhaji Maiwada Zubairu	Knowledge Dynamics Ltd
Supervisor (Kaduna)	Mr. Olusegun Ogidan	Successory Nigeria Limited
Supervisor (Benue)	Prof. Chukwudi Obinne	Cekard Associates
Supervisor (Plateau)	Mr. Peter Alike	Cekard Associates
Assistant Supervisor (Kano)	Adamu Haruna	Knowledge Dynamics Ltd
Assistant Supervisor (Kaduna)	Abdullahi Abubakar	Successory Nigeria Limited
Assistant Supervisor	Mrs. Abigail Orbunde	Cekard Associates

Position	Name	Organisation
(Benue)		
Assistant Supervisor (Plateau)	Mr. Edwin E. Idu	Cekard Associates

2.1 Initial Visits to Locations and Mobilisation for Survey

The supervisors and assistant supervisors undertook initial visits to communities to introduce the project and obtain agreement on suitable venues and times for the FGDs in the four states. Meetings were held with ADP staff in the areas as well as the leadership of communities/villages and leaders of stakeholder associations. The meetings provided opportunities to obtain information on those involved in the Soya value chain, who were thereafter sensitised on the study and the FGDs. The supervisors consciously looked out for women involved in Soya production to ensure that a sizeable number of them participate in the FGDs. These initial visits took place between July 17 and 19, 2007.

2.2 Workshop of Key Project Staff

A workshop was held in Kaduna on the 19th of July to finalise implementation plan for the project and review roles and consider in detail the questionnaires and discussion guides. Participants at the workshop included the key personnel involved in the study, namely the team leader, data analyst, coordinators, supervisors, and assistant supervisors to discuss details of the project. The PrOpCom contact person for the study, Mr. Tunde Oderinde was at the workshop.

2.3 1st Set of Focus Group Discussions

The first set of FGDs was conducted by the coordinators, supervisors and assistant supervisors immediately after the workshop to solicit information from stakeholders, as well as pre-test the tools, guides and other details of the survey. They were held in 34 sites in the 4 states (9 in Kaduna, 11 in Benue and 7 each in Kano and Plateau). Efforts were made, particularly by involving the stakeholder associations and ADPs, to ensure that all categories of stakeholders including small, medium and large scale enterprises were identified and captured for the FGDs. The study teams consciously looked out for women in Soya production, to ensure that a sizeable number of them participate in the FGDs. The breakdown of the number of initial FGDs conducted in the different states is shown in Table 3.

The FGDs were conducted between July 20 and 24, 2007 by twelve people, made up of four coordinators, four supervisors and four assistant supervisors in the four states. Each State had a team of three people, made up of a State coordinator, a supervisor and an assistant supervisor. Thirty-four (34) FGDs were conducted in total, 9 in Kaduna, 11 in Benue and 7 each in Kano and Plateau States for farmers, processors and traders/marketers. Each session lasted an average of 2 hours. The breakdown of FGDs conducted is presented in Table 3:

Table 3: Breakdown of the 1st Set of FGDs

Target group	Kaduna	Benue	Plateau	Kano	Total
	FGDs	FGDs	FGDs	FGDs	FGDs
Large scale traders	1	1	1	1	4
Small scale traders	1	1	1	1	4
Household processors	1	2	1	1	5
Industrial processors	1	0	1	1	3
Artisanal processors	2	2	1	1	6
Farmers	2	4	1	1	8

Farmers/Traders	1	1	1	1	4
TOTAL	9	11	7	7	34

2.4 Enumerative Survey:

Questionnaires were administered on the different categories of stakeholders in the four focus states. During the initial FGDs, the supervisors and enumerators identified those stakeholders that will participate in the enumerative survey. The FGDs were also used to inform the participants of the dates the enumerative survey will be conducted.

Purposive sampling technique was used to ensure that the sample included large numbers of participants with specific characteristics of interest to the project (for example, commercial/industrial processors, high net-worth traders, large scale producers, etc.), but also populations with different characteristics (scale of soya activities, distance from market) and degrees of involvement in activities targeted by the project (commercial vs. household oriented processors).

The enumerator conducted survey was carried out on farmers, processors- artisanal, household, (daddawa, soy milk, cheese), and industrial (oil and animal feed mills) and traders/marketers participating in soya activities in Kano-Kaduna-Benue-Plateau Corridor.

Specifically, the following were carried out:

- Mobilisation of stakeholders for the enumerative survey in the major Soyabean producing Local Government Areas (LGAs) of each State.
- Training for the enumerators. This was carried out from July 19 to 21, 2007 in all the four States. Eleven (11) enumerators were trained in Kaduna State, seven (7) in Benue State, nine (9) in Plateau State, and five (5) in Kano State. The training covered areas such as introduction to the Soya value chain baseline survey project, brief on ProPCom and NNF, understanding the seven different types of questionnaires to be administered, methods and guidelines to questionnaire administration, etc.
- Pre-test of the questionnaires, which was done immediately after the training, by the enumerators
- The enumerative survey. This was carried out from Thursday, July 26 to Tuesday, July 31, 2007 in the four States.
- Questionnaire checking by supervisors and assistant supervisors. This was done at the end of each day, when enumerators submitted completed questionnaires.

The enumerative survey was conducted after the 1st set of FGDs and involved a team of supervisors, assistant supervisors and enumerators in each of the States. The supervisors and assistant supervisors monitored and supervised the enumerators on the field, while also checking completed questionnaires to ensure that data were properly captured. A total of five hundred and eighty-eight (588) questionnaires were administered in the four states. However, due to minor errors in data collection, which were identified during data checking and cleaning, a total of 579 questionnaires were analysed. The respondents comprised 235 farmers, 139 processors, and 205 traders. One hundred and eighty eight (188) questionnaires were administered in Kaduna, one hundred and thirty eight (138) in Benue, one hundred and thirty seven (137) in Plateau, and one hundred and sixteen (116) in Kano State. All categories of stakeholders identified under the study were captured with the exception of Benue State where questionnaires could not be administered on industrial processors because they were not available in the State. The time spent in the administration of each questionnaire varied between 30 minutes and 2 hours, depending on the respondents and volume of questionnaire. Details of actual numbers of questionnaires administered and analysed are presented in Table 4 below:

Table 4: Details of Numbers of Questionnaires Analysed

Target Group						Comment
	Kaduna	Benue	Plateau	Kano	Totals	
Traders/ Marketers						
Bean (traders/ware house owners, farm gate agents, market middlemen)	49	31	26	20	126	The 3 market levels as well as traders/middlemen from the 3 categories identified were included in the survey.
Intermediate-Products (raw oil, cake, meal)	14	6	10	10	40	Middlemen/traders at the level of processing, who purchase cake and meals were included
End Products (refined oil, animal feed, consumer product)	12	6	11	10	39	Primary, feeder and central markets where end products are sold were included in the survey
Processors						
Industrial Oil and feed mills	6	0	2	3	11	Processors from Kano, Kaduna, Zaria and Jos, were included.
Artisanal processors	21	15	26	22	84	Daddawa, soy milk, cheese processors etc most of who are women were included
Household Processors	11	10	14	9	44	Daddawa, soy milk, cheese processors etc, most of who are women were included
Farmers						
Farmers	75	70	48	42	235	Small, medium and large-scale farmers, disaggregated by gender and age were included
Total	188	138	137	116	579	

2.5 Data Coding and Analysis

- Data entry was carried out immediately after the enumerative survey, from Monday, July 30 to Wednesday, August 8, 2007.
- Data checking and cleaning were carried out and completed data sent to PrOpCom for approval
- Data analysis was carried out and completed on Thursday, August 30, 2007

2.6 Key Informant Interviews

The key informant interviews were conducted by supervisors and assistant supervisors in the states. It complemented the enumerator conducted survey and FGDs. It involved follow-up interviews with selected individual members from all the stakeholder groups to ensure the accuracy of group information. The KIIs were used to focus on important characteristics about people, about why and how things happen, attitudes etc. that are often difficult to get

answers to in enumerator conducted surveys. KIIs were also conducted on other important players such as ADP staff to provide answers and offer leads to some important issues. The coordinators traveled to the states to monitor and assist in the conduct of the KIIs and second set of FGDs.

2.7 2nd Set of Focus Group Discussions

The second set of FGDs was carried out after the enumerator conducted survey. This was to provide answers to questions of opinions, attitudes and the more difficult questions as to 'why' certain practices or things are done. They also served to provide greater clarifications of issues that arose in the enumerator conducted survey. The second set of FGDs was used to follow up on issues after the survey where the analysis did not provide a clear answer and were used to make the process more participatory, since we had an opportunity to report back the results of the baseline. For the second set of FGDs, 4 FGDs were conducted in Kaduna, 4 in Benue, 4 in Plateau and 3 in Kano states. The second set of FGDs was conducted by supervisors, assistant supervisors and coordinators.

2.8 Case Studies

Case studies were implemented on a small number of the people representing different groups targeted to obtain a better understanding of the importance of the Soya activities in their employment of resources and in their income streams. Case studies were conducted by supervisors, assistant supervisors and coordinators. Coordinators were involved to ensure good quality of the KIIs, FGDs and case studies.

Table 5: Breakdown of the 2nd Set of FGDs, KIIs and Case Studies

Target group	Kaduna			Benue			Plateau			Kano			Total
	FGD	KII	CS	FGD	KII	CS	FGD	KII	CS	FGD	KII	CS	
Large scale traders	1	0	0	0	0	0	1	0	0	0	0	0	2
Small scale traders	0	0	0	1	2	0	1	0	0	1	1	1	7
Household processors	1	0	1	1	1	0	0	0	0	1	1	1	7
Industrial processors	0	1	0	0	0	0	0	2	0	0	0	0	3
Artisanal processors	1	0	1	1	0	0	0	0	1	0	0	1	5
Farmers	1	0	1	1	0	0	1	1	0	1	1	1	8
Farmers/Traders	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL	4	1	3	4	3	0	4	3	1	3	3	4	33

3. BACKGROUND INFORMATION ON RESPONDENTS

The major stakeholders in the Soya value chain in Kaduna, Kano, Benue and Plateau States are farmers, household processors, artisanal processors, industrial processors, soya bean traders, intermediate traders and large-scale traders. The survey techniques used attempted to capture good representation of these stakeholders. Farmers in the target states cultivate several varieties of soyabeans, with the common ones being the Samsoy (derived from IAR, Samaru) and TGX varieties (obtained from IITA). Farming operations in these communities include land clearing, ploughing, harrowing, broadcasting/planting, weeding, harvesting, threshing and winnowing. The winnowed soyabean is processed into soya oil, soy milk, soy cake, soy meal, daddawa and awara. The processed soya is marketed through definite routes to consumers. Stakeholders in the soya value chain face peculiar and sometimes serious challenges that hinder the smooth operation of the chain.

3.1 Focus Group Discussions & Key Informant Interviews

Focus group discussions, key informant interviews and case studies were held with the key stakeholders in the four states. Background information for the stakeholders surveyed is presented below.

a. Farmers

The FGDs with farmers involved between 12 and 20 in each FGD with participation of only small numbers of women, except in Benue State. The ages of participants in the FGDs were between 20 and 70 years with average ages being mostly in the 40s. Most of the farmers who took part in the FGDs had lived significant parts of their lives in the communities and had been involved in soyabean cultivation most of their adult lives.

In Kaduna State, the farmers were mostly male, had been in farming for between 10 and 41 years and had average annual incomes between ₦100,000 and ₦2 million. The first set of FGDs for farmers were held in a predominantly Islamic Community hence there was no participation of women in the FGDs. The farmers that participated in the FGDs were aged between 30 and 67 years with the average age being 40 years. They had been involved in farming for between 8 and 23 years with the longest serving farmers coming from Kaya community.

In Benue State, most farmers were male of different age groups, had been in the business for an average of 18 years with an annual income of about ₦25,000. They cultivate mostly small farms of 1 to 2 hectares but there were also large scale farmers particularly in Yandev, Kwande, Gboko, Buruku, and Makurdi. Farms are cultivated by all members of the family including old men and women. During the first FGDs, aged farmers above 60 years old were found in Yandev and Wannune, Tarka LGAs; women farmer aged between 25 and 55 were found in Ibyabya and Kanshio in Makurdi LGA. The second focus group discussion carried out on farmers was more participatory. This was held in Ibyabya village, Yandev a 3 km distance off Gboko express way. 12 farmers participated in the FGD out of which 4 of them were women farmers. Except for the women farmers who had been married into the community and lived for up to 17 years, the other farmers have lived in the community for a period of 17 – 55 years. They have spent an average of 30 years farming soyabean. The least aged farmer was 27 years old and the eldest, 75 years.

In Plateau State, focus group discussion with Soya beans farmers was held in Niyes village in Mangu Local government area of the state. Deliberate attempt was made to ensure a good spread of study. While the 1st FGD captured farmers in Langtang, Panyam area, where farmers are predominantly male, the 2nd FGD captured farmers in Kuru, Vom axis where farmers are predominantly women, and mechanized Soya bean farmers like West

African Milk Company (WAMCO), now Integrated Dairy Farm (IDF) and the National Veterinary Research Institute (NVRI) were identified, and the effect of their activities on the neighboring communities in their Soya bean farming. Most participants were married with over 20 years experience in farming, most had no formal education, with farming being their primary occupation, and earning less than ₦50,000 per annum as income. The farmers in Niyes village are mainly males and have an age range between 26 and 60 years old. Their average age is 40 years and they have lived in the community for over 20 years.

The participants in Kano had been in farming for an average of 41 years, had minimal education with farming being their primary occupation and have an annual income of about ₦200,000. The socio- demographic data indicated that Soya bean farming in this community is dominated by men as there was only one female in the group of the eight farmers. Their ages range from 35 - 49 years with an average of 39.7 years. Average family size is 8 people with an average income of ₦104,375. Details of the background information on the participants at the FGDs for farmers are provided in Table 6.

Table 6: Background information on farmers who participated in the FGDs in the four states

State	Kaduna		Benue				Plateau	Kano
LGA	Giwa	Giwa	Buruku	Makurdi	Tarka	Yandev	Mangu	Gwarzo
Community	Kaya 1	Kaya 2	Abwambagen	Kanshio	Wanune	Ibyabya	Niyes	Gwarzo
No. of participants	14	20	15	15	12	15	14	15
No. of Women in the group	0	0	4	5	3	6	0	0
Age range (years)	35 - 67	25 - 55	25 - 60	25 - 55	20 - 60	20 - >60	26 - 60	25 - 70
Average age (years)	45	42	36	35	30	45	40	47
Years spent in the business	10 - 41	7 - 26	21	18	20	30	20	-
Years lived in community	From birth	From birth	35	25	30	60	25	5 - 25
Average Ha cultivated	8	3	2	2	1	2	Could not specify	9

b. Farmer-Traders

Three (3) FGDs were carried out in Kaduna, Benue and Kano States for farmers who are also traders but in Plateau State, an FGD was held with intermediate traders instead because all the farmers identified in the survey were also involved in soyabean trading. Numbers of participants at the FGDs in the four States ranged from 8 in Plateau to 24 in Kaduna. Participants were mainly men, who had spent most of their lives in their communities, with ages ranging from 20 to 72 years. There were no women participants in the farmer-trader category. Details of background information of farmers who are also traders are presented in Table 7.

Table 7: Background information on farmers/traders who participated in the FGDs in the four states

State	Kaduna	Benue	Plateau ¹	Kano
Community	Kaduna	Wanune	Katako Market - Jos	Kutama
LGA	Kaduna North	Tarka	Jos North	Gwarzo
No. of participants	24	14	8	10
No. of Women in the group	0		1	0
Age range (years)	25 - 70	20 - 60	20 - 55	34 - 72
Average age (years)	45	28	38	51
Years spent in the business	10 - 41	20	8	9
Years lived in community	10 - 43	All their life	20	Not available

c Processors

Three sets of processors were identified for the FGDs. These are household processors, artisanal processors and industrial processors.

i. Household processors

Household processors usually process soya bean into soymilk, daddawa, awara and soy cake (fried and eaten). Five FGDs were carried out with this category with participation ranging from 7 to 16. The ages of participants were between 18 and 60 years with average ages being mostly in the 30s. Information obtained shows that household processors in Kaduna are predominantly married women aged between 26 and 35 years with 1 to 5 years experience in the business. Most of them had education up to secondary school level and earned between ₦50,000 to ₦100,000 annually. In Benue State, they were mostly married women aged between 18 and 50 years with 10 to 20 years experience in the business. The ages of household processors in Plateau state were between 18 and 55 years. They are mostly females with education up to secondary school level and had been in the business for 1 to 5 years with an estimated annual income of between ₦50,000 and ₦100,000. In Kano State, participants at the FGDs were all women with an average age of 31 years and with about 7 years experience in the business. Details of background information on household processors are provided in Table 8.

ii. Artisanal processors

Artisanal processors are mostly involved in the production of soymilk, daddawa, awara and soy cake (fried and eaten) in Kaduna and Benue states while in Kano and Plateau States, they are mostly involved in the production of soya oil and soya cake for use in livestock feeds. Six (6) FGDs were held with artisanal processors with participation ranging from 6 to 14 per group. The ages of participants in the FGDs were between 12 and 65 years with average ages being mostly in the 30s and 40s. In Kaduna, Benue and Kano States, artisanal processors were mostly females with little or no education. In Plateau State, the artisanal processors were mainly males with secondary education, having between 1 and 5 years' experience in the business and an annual income between ₦500,000 to ₦1 million. Details of background information on artisanal processors involved in the FGDs are presented in Table 8.

¹ This FGD was carried out for intermediate traders – those who trade in soymilk, soy cake, etc.

iii. Industrial processors

Industrial processors are mostly involved in the production of refined and unrefined soya oil, and livestock feeds using soy cake. Most industrial processors in Kaduna State are males in the age range of 35 to 45 years with tertiary education, They have been in the business for between 3 and 15 years and have an estimated annual income of between ₦500,000 and ₦1 million. There are no industrial processors in Benue State. In Plateau State, there were two main industrial processors, Grand Cereal and ECWA Feeds. They have been in business for between 5 and 20 years. In Kano State, industrial processors were mainly males. Details of background information on industrial processors that participated in the FGDs are provided in Table 8.

Table 8: Background information of Processors involved in FGDs & KIs

	Kaduna		Benue		Plateau	Kano
Household Processors						
Community	Goni Gora		Waune	Wadata	Mangu	Nassarawa
LGA	Kaduna South		Tarka	Makurdi	Mangu	Kano municipal
No. of participants	12		16	16	7	9
No. of Women in the group	12		16	16	7	9
Age range (years)	35 – 49		25 – 60	25 – 55	18 – 55	30 – 35
Average age (years)	45		35	33	35	31
Years spent in the business	5 – 30		20	10	10	7
Years lived in the community	7 – 30		20	20	20	No information
Artisanal Processors						
Community	Kaya	Kaya	Wadata	Wanune	Bukuru	Kano
LGA	Giwa	Giwa	Makurdi	Tarka	Jos South	Kano Municipal
No. of participants	14	14	12	10	6	8
No. of Women in the group	14	14	12	10	1	0
Age range (years)	27 – 60	12 – 65	25 – 60	20 – 50	18 – 45	41-57
Average age (years)	35	40	35	25	30	49
Years spent in the business	1 – 20	1 - 20	10	10	5	5
Industrial Processors						
Community	Kaduna				Bukuru	Kano
LGA	Kaduna North				Jos South	Kano Municipal
No. of participants	5				2	2
No. of Women in the group	1				0	0
Age range (years)	34 – 59				26 – 45	41-57
Average age (years)	49				37	49
Years spent in the business	5 – 20				6	Not available
Years lived in the community	10 - 43				7	Not available

d. Traders

Two sets of traders (small-scale and large-scale) were identified for the FGDs. Details of background information of traders involved in the FGDs are presented in Table 9.

i. Small-scale traders

Small scale traders are usually involved in the sale of soyabean in mudus, tiyas, and tins. In Kaduna State, they were predominantly females between the ages of 20 and 55 years with primary or secondary education and an average estimated income of less than ₦50,000. In Benue State, majority of participants were females with an average age of 40 years and an estimated annual income of ₦30,000. In Plateau State, they were females between the ages of 26 and 45 years with primary and secondary education and have been in the business for between 6 and 20 years having an estimated annual income of between ₦50,000 and ₦500,000. In Kano State, they were mostly males between the ages of 38 and 50 years and have been in the business for up to 25 years with an estimated average annual income of ₦16 million.

ii. Large-scale traders

Large scale traders are usually involved in the sale of soyabean in 50kg and 100kg bags. In Kaduna State, they were mostly married men between the ages of 25 and 62 years. About 50% have secondary education and the other 50% have no formal education but had attended Arabic schools. The average annual income is between ₦50,000 to ₦100,000. In Benue State, they were mostly females with between 15 and 30 years in the business and average annual income of ₦80,000. In Plateau State, the large scale traders were mainly males between the ages 26 and 55 years and mostly uneducated. They have been in the business for between 6 and 15 years with annual income ranging from ₦50,000 to ₦1 million. In Kano State, the large scale traders were mostly males between 34 and 51 years and have been in the business for up to 25 years with an estimated annual average income of ₦6.4 million.

Table 9: Background information of Traders involved in FGDs & KIIs

	Kaduna	Benue	Plateau	Kano
Small-Scale Traders				
Community	Kakuri	Wanune	Mangu	Dawanah
LGA	Kaduna South	Tarka	Mangu	
No. of participants	12	12	8	7
No. of Women in the group	12	10	8	0
Age range (years)	28 – 55	30 – 60	26 – 45	38 – 50
Average age (years)	37	40	38	41
Years spent in the business	4 – 41	10 – 30	15	5 – 25
Years lived in the community	5 – 46	30	20	Not available
Large-Scale Traders				
Community	Maigana	Wanune	Jengre	Dawanah
LGA	Soba	Tarka	Bassa	
No. of participants	18	11	6	15
No. of Women in the group	0	10	0	0
Age range (years)	25 – 70	30 – 60	26 - >55	34 – 51
Average age (years)	45	35	45	40
Years spent in the business	10 – 41	15 – 30	30	5 – 25
Years lived in the community	10 - 43	25	40	Not available

3.2 Enumerative Survey

a. Farmers

Table 10 shows a summary of the socio-demographic data on soya farmers in Kaduna, Benue, Plateau and Kano states. The data is presented in percentages. Generally most soya farmers are married men between the ages of 26 and 45 years living in rural and semi urban areas. Farming is the primary occupation of more than 80 percent of soya farmers in Kaduna, Benue and Plateau while only about 40 percent of soya farmers in Kano have farming as their primary occupation. The level of education of the farmers varied significantly from one state to another with the more educated farmers being in Benue and Kano where more than two-thirds of the respondents had completed secondary school. Most soya farmers in Kaduna (58%), Benue (90%) and Plateau (64%) are small holders with annual incomes of less than ₦100,000. Small holder farmers in Kano are much smaller proportionately (31%) and more than 20% of the farmers have annual incomes over ₦500,000. About 25% of the farmers in Kaduna also have annual incomes over ₦500,000.

Kaduna State: Table 10 shows that soya farming in Kaduna state is dominated by married men living in rural (43%) and semi urban (31%) areas. More than 80% of the farmers are men, about 85% are married and mostly (82%) between the ages of 26 and 55. Most of them had spent their adult lives in farming. A majority of the farmers (68%) do not have more than primary school education, about 21% had completed secondary school education and only about 11% had tertiary education. More than 81% of the farmers have household sizes greater than 5. Farming is the primary occupation of more than 80% of those engaged in soya cultivation. Farmers in Kaduna have relatively large farms, about 90% of the farmers have farms larger than 1.5 hectares and more than 40% have farms with sizes more than 7 hectares. About 55% of the farmers earn less than ₦100,000 annually from farming, about 25% earn more than ₦500,000 and 8% earn more than ₦1 million. There is no significant difference in income variations among male and female respondents in this State, although a slightly higher percentage of women (43%) earn less than N50,000 per annum as against 33% of male respondents. While only 61% of male respondents cultivate less than 3Ha in the low income (less than N50,000 per annum) category, all female respondents in this category cultivate less than 3Ha.

Benue State: Table 10 shows that majority of soya farmers in Benue state are married men but there is a significant presence of women. About 76% of the farmers are men and 26% are women, about 81% are married and mostly (75%) between the ages of 26 and 55. Soya farmers are found equally in urban (47%) and rural areas (46%) of Benue. Most of them had spent their adult lives in farming and mostly educated with about 63% having had secondary school education and about 30% having had tertiary education. More than 73% of the farmers have household sizes greater than 5. Farming is the primary occupation of more than 80% of those engaged in soya cultivation. Farmers in Benue are predominantly small holders, about 85% of the farmers have farms smaller than 3 hectares and about 90% of the farmers earn less than ₦100,000 annually from farming. Many male respondents (48%) earn between N50,000 and N100,000 per annum while majority of female respondents (65%) earn below N50,000 per annum. For low income farmers (less than N50,000 per annum), there is no significant difference between number of hectares cultivated amongst male and female respondents. However, in the middle income category (N50,000 – N100,000 per annum), it seems there are more women (17%) cultivating between 3 and 6 Hectares of land as against just 8% of male respondents. There are no women earning more than N100,000 per annum while 14% of male respondents earn above N100,000 per annum. 33% of male respondents who earn more than N500,000 per annum cultivated more than 10 Ha of land.

Plateau State: Table 10 shows that soya farming in Plateau state is dominated by married men living mostly (63%) in urban areas. All the farmers interviewed are married, about 85% are men and about 61% are between the ages of 26 and 55. Plateau state has a relatively high proportion of old farmers with about 38% of the soya farmers aged more than 56 years. Most of them had spent their adult lives in farming. A majority of the farmers (75%) do not have more than primary school education, about 19% had completed secondary school education and only about 6% had tertiary education. About 88% of the farmers have household sizes between 5 and 15. Farming is the primary occupation of about 85% of those engaged in soya cultivation. A majority (56%) of the farmers has farms smaller than 1.5 hectares but a relatively high proportion of 37% has farms bigger than 3 hectares. About 61% of the farmers earn less than ₦100,000 annually from farming, about 35% earn more than ₦500,000 and 8% earn more than ₦1 million. Male farmers in the state are much older than their female counterparts as 43% of male farmers are above 55 years old while none of the female farmers is above 55 years.

Kano State: Table 10 shows that married men make up about 98% of soya farmers in Kano state. They are mostly (88%) between the ages of 25 and 55 years but most of them (77%) have spent less than 10 years in farming. About 52% of the farmers live in rural and a sizable 41% live in urban areas. A relatively high proportion of the farmers are educated, about 48% and only about 31% have less than secondary education. About 76% have household sizes less than 15. Only 41% of the farmers have farming as their primary occupation and a high proportion (47%) of soya farmers in the state are civil servants. Farmers in Kano have relatively large farms, about 88% of the farmers have farms larger than 1.5 hectares and more than 37% have farms with sizes more than 7 hectares. About 31% of the farmers earn less than ₦100,000 annually from farming, about 48% earn between ₦100,000 and ₦500,000 and only 5% earn more than ₦1 million.

Table 10: Background information on farmers involved in enumerative survey

Characteristics	Kaduna (n=75)	Benue (n=70)	Plateau (n=48)	Kano (n=42)
Residence				
Urban	27	47	63	41
Semi urban	31	7	4	7
Rural	43	46	33	52
Sex				
Male	81	74	85	98
Female	19	26	15	2
Marital Status				
Single	13	9	--	--
Married	85	81	100	98
Others	1	10		2
Years spent in farming				
5 years or less	8	4	13	48
6-10 years	32	17	46	29
11-15 years	20	24	17	2
16-20 years	23	31	8	14
21 years or more	17	23	18	7
Current age of respondents				
Less than 26 years	5	7	2	5
26-35 years	25	23	21	21
36-45 years	32	41	25	41
46-55 years	25	11	15	26
56 years and above	12	17	38	7
Highest level of education				

Characteristics	Kaduna (n=75)	Benue (n=70)	Plateau (n=48)	Kano (n=42)
completed				
Primary or none	68	37	75	31
Secondary	21	33	19	21
Tertiary	11	30	6	48
Number of household members				
Less than 5	19	27	13	31
5-15 members	52	51	88	45
16-20 members	21	16	4	7
21 members or more	8	6	7	17
Primary occupation of respondents				
Farming	81	81	85	41
Civil servant	8	10	6	47
Trading	9	1	2	5
Processing	--	3	--	--
Housewife	1	4	6	5
Estimated farm size				
<=0.5 hectare	3	34	48	2
0.6-1.5 hectares	7	51	8	10
1.6 -3 hectares	27	7	6	17
3.1 – 6 hectares	23	4	31	32
7 hectares or more	41	3	6	37
Estimated personal income				
Below ₦50,000	33	47	33	12
50,001 – 100,000	23	43	31	19
100,001 – 500,000	19	6	21	48
500,001 – 1,000,000	17	1	6	17
1,000,001 or more	8	3	8	5
Male Income				
≤ 50,000	32%	39%	30%	13%
50,001 – 100,000	24%	47%	38%	20%
100,001 – 500,000	19%	8%	20%	49%
> 500,000	25%	6%	8%	18%
No response	0%	0%	4%	0%
Female Income				
≤ 50,000	43%	65%	67%	0%
50,001 - 100,000	21%	35%	0%	0%
100,001 - 500,000	21%	0%	33%	100%
> 500,000	14%	0%	0%	0%
Age – Male				
< 26	7%	4%	3%	5%
26 – 35	27%	31%	20%	23%
36 – 45	27%	43%	20%	43%
46 – 55	28%	8%	15%	25%
> 55	12%	14%	43%	5%
Age - Female				
< 26	0%	19%	0%	0%
26 - 35	23%	6%	29%	0%
36 - 45	62%	50%	57%	0%
46 - 55	15%	25%	14%	100%

Characteristics	Kaduna (n=75)	Benue (n=70)	Plateau (n=48)	Kano (n=42)
> 55	0%	0%	0%	0%

b. Household Processors

Table 11 shows a summary of the socio-demographic data on household processors of soya in Kaduna, Benue, Plateau and Kano states. The data is presented in percentages. Generally most household processors of soya are married women between the ages of 26 and 55 years. Processing is the primary occupation of most of the processors in Benue and Kano while the processors in Kaduna and Plateau are primarily traders. The level of education of the processors varied significantly from one state to another with the more educated processors being in Benue and Plateau where about half of the respondents had completed secondary school. Most household processors have estimated annual income of less than ₦100,000 except in Kano where about 33% earn between ₦100,000 and ₦500,000.

Kaduna State: Table 11 shows that household processors of soya in Kaduna state are all married women living in rural (57%) and urban (43%) areas and all between the ages of 26 and 55 years. Most of them had spent their adult lives in processing soyabean. About 91% have no formal education and the remaining 9% do not have more than secondary school education. About 90% of the processors have household sizes greater than 5. Their primary occupations are farming (64%) and trading (36%) and they all have annual incomes of less than ₦100,000.

Benue State: Table 11 shows that household processors of soya in Benue state are mostly women (80%) and married (90%) living mostly in urban areas (90%). They cut across the age brackets, 40% being between 26 and 35 years, 30% are between 36 and 45 years, 20% are between 46 and 55 years and 10% are over 56 years of age. Most of them had spent their adult lives in processing but a significant proportion (33%) has spent less than 5 years in processing. They are relatively well educated, about 50% had at least secondary school education and 20% had tertiary education. About 80% of the processors have household sizes greater than 5. The primary occupation of about 70% of the processors is processing with annual incomes of most respondents (90%) less than ₦100,000.

Plateau State: Table 11 shows that household processors of soya in Plateau state are all women, 80% being married living mostly (93%) in rural areas, all between the ages of 26 and 55 years but a significant proportion (67%) being between 26 and 35 years of age. Most of them had spent their adult lives in processing but a significant proportion (36%) had spent less than 5 years in processing. About 43% had secondary school education and 50% had only primary school education. Only about 7% had tertiary education. Household sizes are relatively small with 33% having less than 5 and the remaining 67% having between 5 and 15 members. Their primary occupations are trading (57%), civil service (14%) and farming (21%) and they all have annual incomes of less than ₦100,000 with about 27% of the respondents earning less than ₦50,000.

Kano State: Table 11 shows that household processors of soya in Kano state are all married women living in rural (56%), semi-urban (22%) and urban (22%) areas and all between the ages of 26 and 45 years. Most of them had spent their adult lives in processing but 22% have spent less than 5 years in processing. About 78% have no more than primary school education and the remaining 22% do not have more than secondary school education. About 89% of the processors have household sizes greater than 5. Their primary occupation is processing (89%). About 11% are housewives and they all have annual incomes of less than ₦500,000.

Table 11: Background information on household processors involved in enumerative survey

Characteristics	Kaduna (n=11)	Benue (n=10)	Plateau (n=14)	Kano (n=09)
Residence				
Urban	43	90	7	56
Semi urban	--	10	--	22
Rural	57	--	93	22
Sex				
Male	--	20	--	--
Female	100	80	100	100
Marital Status				
Single	--	--	20	--
Married	100	90	80	100
Others	--	10	--	--
Category of processor				
Household	100	100	100	100
Years spent in processing				
5 years or less	--	33	36	22
6-10 years	10	22	50	22
11-15 years	10	11	7	22
16-20 years	40	33	7	33
21 years or more	40		--	--
Current age of respondents				
Less than 26 years	--	--	13	--
26-35 years	10	40	67	33
36-45 years	70	30	13	67
46-55 years	20	20	7	--
56 years and above	--	10	--	--
Highest level of education completed				
Primary	-	10	50	44
Secondary	9	50	43	22
Tertiary	--	20	7	--
None	91	20		33
Number of household members				
Less than 5	10	20	33	11
5-15 members	60	70	67	44
16-20 members	20	10	--	22
21 members or more	10	--	--	22
Primary occupation of respondents				
Farming	36		21	
Civil servant	--	--	14	--
Trading	64	20	57	--
Processing	--	70		89
Housewife		10	--	11
Estimated personal income				
Below ₦ 50,000	50	45	27	33
50,001 – 100,000	20	45	7	22
100,001 – 500,000	--	10	7	33
500,001 – 1,000,000	--	--	--	--

Characteristics	Kaduna (n=11)	Benue (n=10)	Plateau (n=14)	Kano (n=09)
1,000,001 or more	--	--	--	--
Don't know	30	--	60	11

c. Artisanal processors

Table 12 shows a summary of the socio-demographic data on artisanal processors of soya in Kaduna, Benue, Plateau and Kano states. The data is presented in percentages. Both men and women across the age groups are involved in processing soya at the artisanal level, practicing their trade in urban, semi urban and rural areas. About 90% of processors are women in Kaduna state, about 90% are men in Kano state, 47% are men in Benue state and about 55% are men in Plateau state. More than 85% of the processors are married across the states except in Kaduna where only about 62% are married. Processing is the primary occupation of about 95% of the processors in Kano, Benue and Plateau while in Kaduna the processors are primarily farmers. People of all levels of education are involved in processing at the artisanal level in all the states. Most artisanal processors have estimated annual income of less than ₦500,000 except in Kano where about 23% earn between ₦500,000 and ₦1,000,000 and about 32% earn over ₦1million.

Kaduna State: Table 12 shows that artisanal processors of soya in Kaduna state are mostly women (90%), many (62%) of whom are married, living in rural (43%) and urban (48%) areas and mostly between the ages of 26 and 55 years. Most of them had spent their adult lives in processing. About 72% do not have more than primary school education but up to 14% had tertiary education. The remaining 14% do not have more than secondary school education. About 72% of the processors have household sizes greater than 5. Their primary occupation is farming (62%) and most of them (71%) have annual incomes of between ₦50,000 and ₦500,000.

Benue State: Table 12 shows that artisanal processing of soya is practiced by both men (47%) and women (53%) in Benue state most of whom are married (87%) living in urban (27%), semi urban (40%) and rural areas (33%). They are mostly older than 26 years (93%) and have spent their adult lives in processing but a small proportion (27%) have spent less than 5 years in processing. They are relatively well educated; about 67% had at least secondary school education and 27% had tertiary education. Their primary occupations are processing (47%), trading (13%) and farming (13%) with annual incomes mostly (80%) between ₦50,000 and ₦500,000.

Plateau State: Table 12 shows that artisanal processors of soya in Plateau state are both married (46%) and single (36%) men (55%) and women (46%) between the ages of 26 and 55 years. Many (55%) are relatively new in processing having spent less than 5 years in processing activities. About 18% of the processors had only primary education, about 46% had secondary education and about 36% had tertiary education. About 81% of the processors have household sizes greater than 5. Their primary occupation is processing (46%) and trading (36%) and they have annual incomes ranging from ₦100,000 – ₦500,000 (18%), to ₦500,000 – ₦1 million (18%) and another 18% earning more than ₦1 million.

Kano State: Table 12 shows that artisanal processors of soya in Kano state are mostly married men (90%), living in rural (59%) and semi-urban (36%) areas and mostly (92%) between the ages of 26 and 55 years. Many (55%) are relatively new in processing having spent less than 5 years in processing activities. About half of the processors had only primary education but about 36% had tertiary education. About 72% of the processors have household sizes greater than 5. Their primary occupation is processing (95%) and they have relatively high annual incomes with more than half earning over ₦500,000 and about 32% earning over ₦1 million.

Table 12: Background information on artisanal processors involved in the enumerative survey

Characteristics	Kaduna (n=21)	Benue (n=15)	Plateau (n=26)	Kano (n=22)
Residence				
Urban	48	27	-	5
Semi urban	10	40	-	36
Rural	43	33	-	59
Sex				
Male	10	47	55	91
Female	91	53	46	9
Marital Status				
Single	5	13	36	9
Married	62	87	46	86
Others	33	--	18	5
Years spent in processing				
5 years or less	14	27	55	55
6-10 years	48	40	18	18
11-15 years	10	27	9	9
16-20 years	19	7	18	14
21 years or more	10	--	0	5
Current age of respondents				
Less than 26 years	10	7	9	9
26-35 years	24	20	27	23
36-45 years	38	27	18	46
46-55 years	24	20	18	14
56 years and above	5	27	28	9
Highest level of education completed				
Primary or none	72	33	18	50
Secondary	14	40	46	14
Tertiary	14	27	36	36
Number of household members				
Less than 5	24	33	18	27
5-15 members	48	40	36	50
16-20 members	14	27	18	18
21 members or more		--	27	5
Primary occupation of respondents				
Farming	0	13	0	0
Civil servant	0	0	0	5
Trading	62	13	36	0
Craft	5	0	0	0
Processing	14	47	46	96
Housewife	19	20	0	0
Retired	0	7	18	0
Estimated personal income				
Below ₦50,000	10	20	0	9
50,001 – 100,000	24	33	0	23
100,001 – 500,000	48	47	18	14
500,001 – 1,000,000	10	--	18	23
1,000,001 or more	10	--	18	32
Don't know	0	0	18	0
No response	0	0	27	0

d. Industrial processors

Table 13 shows a summary of the socio-demographic data on industrial processors of soya in Kaduna, Benue, Plateau and Kano states. The data is presented in percentages. Only men across the age groups are involved in processing soya at the industrial level, practicing their trade in urban areas. Processing is the primary occupation of all (100%) of the processors in Plateau and Kano while in Kaduna 17% are primarily processors, 67% are primarily traders and 17% are primarily civil servants. Only people with secondary education and above are involved in processing at the industrial level in all the states. Most industrial processors have estimated annual incomes of ₦500,000 or less except in Kano where about 33% earn between ₦1,000,000 and ₦3.5million.

Kaduna State: Table 13 shows that industrial processors of soya in Kaduna state are all men (100%), living in urban areas and mostly (84%) between the ages of 36 and 55 years. Most of them (83%) had spent 10 years or less in processing. About 17% do not have more than secondary school education but about 83% had tertiary education. All of the processors have household sizes less than 5. Their primary occupations are trading (67%), processing (17%) and civil service (17%) and most of them (67%) have annual incomes of between ₦50,000 and ₦100,000.

Plateau State: Table 13 shows that industrial processing of soya is practiced by only men in Plateau state living in urban areas. They are all (100%) between 26 and 45 years of age and have spent all their adult lives in processing. They are very well educated with all (100%) having tertiary education. Their primary occupation is processing with annual incomes (100%) between ₦50,000 and ₦500,000.

Kano State: Table 13 shows that industrial processors of soya in Kano state are men, living in urban areas and mostly (67%) between the ages of 46 and 55 years. Many (67%) are relatively new in processing having spent less than 5 years. About 33% of the processors have secondary education or less but about 67% have tertiary education. All (100%) the processors have household sizes greater than 5. Their primary occupation is processing (100%) and they have relatively high annual incomes with 67% earning between ₦100,000 and ₦500,000 and 33% earning over ₦1 million.

Table 13: Background information on industrial processors involved in the enumerative survey

	Kaduna (n=6)	Plateau (n=2)	Kano (n=3)
Age: less than 26 years	17	0	0
26-35 years	0	50	33
36-45 years	67	50	0
46-55 years	17	0	67
Sex: Male	100	100	100
Female	0	0	0
Years spent in business: 1-5years	50	0	67
6-10 years	33	0	0
11-15 years	17	0	0
16years +	0	100	33
Education: secondary or less	17	0	33
Tertiary education	83	100	67
Number of household members- less than 5	100	100	0
5-15	0	0	67
16-20	0	0	33
Primary occupation			

	Kaduna (n=6)	Plateau (n=2)	Kano (n=3)
Civil servants	17	0	0
Trading	67	0	0
Processor	17	100	100
Personal annual income			
below 50,000	17	0	0
50,000-100,000	67	50	0
100,001-500,000	0	50	67
1,000,001-3,500,000	17	0	33

e. **Soya bean traders**

Table 14 shows a summary of the socio-demographic data on soya bean traders in Kaduna, Benue, Plateau and Kano states. The data is presented in percentages. Generally most soya bean traders are married men between the ages of 26 and 55 years living in rural and semi urban areas. Trading is the primary occupation of 71% of the respondents in Benue, 74% in Kaduna, 90%, in Kano, and 62% in Plateau. The level of education of the traders varied from one state to another with the most educated traders being in Benue, Kano and Plateau states. In these states, more than half of the respondents had completed secondary school. Most soya beans traders in Kaduna (55%), Benue (77%) and Plateau (81%) are small scale traders with annual incomes of less than ₦100,000. Soya bean traders in Kano are much smaller proportionately (40%) and more than 30% of the traders have annual incomes of over ₦500,000. About 14% of the traders in Kaduna also have annual income of over ₦500,000. Generally, about 50 % of the traders had spent about eleven years or more in soyabean trade.

Kaduna State: Table 14 shows that soyabean trade in Kaduna state is dominated by married men living in semi urban (84%) and urban (12%) areas. More than 79% of the traders are men, about 90% are married and mostly (85%) between the ages of 26 and 55. Most of them had spent their adult lives in trading. Majority of the traders (65%) do not have more than primary school education, about 20% had completed secondary school education and only about 14% had tertiary education. More than 75% of the traders have household sizes greater than 5. Trading is the primary occupation of more than 73% of those engaged in soya beans trading. About 55% of the traders earn less than ₦100,000 annually from trading, about 10% earn more than ₦500,000 and 4% earn more than ₦1 million.

Benue State: Table 14 shows that majority of soyabean traders in Benue state are married men but there is a significant presence of women. About 77% of the traders are men and 23% are women, about 71% are married and mostly (87%) between the ages of 26 and 55. Soya bean traders are found mainly in semi-urban (61%) areas, with few in rural areas (29%) of Benue. Most of them had spent their adult lives in trading. Most of them are educated with about 52% having had secondary school education and about 10% having had tertiary education. More than 80% of the traders have household sizes greater than 5. Trading is the primary occupation of more than 70% of those engaged in soya bean trade. About 78% of the traders earn ₦100,000 or less annually from trading.

Plateau State: Table 14 shows that soya bean trading in Plateau state is dominated by married men living mostly (96%) in rural areas. About 89% of the traders interviewed are married, about 62% are men and about 73% are between the ages of 26 and 55. Plateau state has a relatively high proportion of old traders with about 23% of the soya traders being over 56 years. A lot of them had spent their adult lives in trading. Some of the traders (46%) do not have more than primary school education, about 50% had completed secondary school education and only about 4% had tertiary education. About 81% of the traders have household sizes between 5 and 15. Trading is the primary occupation of about 62% of those

engaged in soybeans trading. About 81% of the traders earn less than ₦100,000 annually from trading, about 15% earn between ₦100,000 and ₦500,000 per annum, while only 4% earn more than ₦500,000 per annum.

Kano State: Table 14 shows that married men make up about 95% of soya traders in Kano state. They are mostly (95%) between the ages of 25 and 55 years and most of them (90%) have spent more than 11 years in soybeans trade. About 90% of the traders live in rural areas. About 45% of the traders have primary or no education at all, 45% have secondary education and only 10% have tertiary education. About 90% have household sizes greater than 5. About 90% of the traders have trading as their primary occupation. About 40% of the traders earn less than ₦100,000 annually from trading, about 30% earn between ₦100,000 and ₦500,000 and only 15% earn more than ₦1 million.

Table 14: Background information on soya bean traders involved in the enumerative survey

Characteristics	Kaduna (n=49)	Benue (n=31)	Plateau (n=26)	Kano (n=20)
Residence				
Urban	12	10	--	--
Semi urban	84	61	4	10
Rural	4	29	96	90
Sex				
Male	80	77	62	100
Female	20	23	39	--
Marital Status				
Single	10	16	4	5
Married	90	71	89	95
Others	--	13	8	--
Years spent in trading				
5 years or less	20	16	31	--
6-10 years	29	32	27	10
11-15 years	25	32	19	35
16-20 years	14	3	12	25
21 years or more	12	16	12	30
Current age of respondents				
Less than 26 years	10	3	4	5
26-35 years	20	32	27	15
36-45 years	25	39	35	50
46-55 years	41	16	12	30
56 years and above	4	10	23	--
Highest level of education completed				
Primary or none	65	37	46	45
Secondary	20	52	50	45
Tertiary	14	10	4	10
Number of household members				
Less than 5	25	19	19	10
5-15 members	41	61	39	50
16-20 members	27	13	19	20
21 members or more	8	6	23	20
Primary occupation of respondents				
Farming	10	16	27	5

Characteristics	Kaduna (n=49)	Benue (n=31)	Plateau (n=26)	Kano (n=20)
Civil servant	2	10	8	5
Trading	74	71	62	90
Processing/craft/retired	6	--	4	--
Housewife	6	3	--	--
Estimated personal income				
Below ₦ 50,000	31	29	65	5
50,001 – 100,000	25	48	15	35
100,001 – 500,000	31	23	15	30
500,001 – 1,000,000	10		4	15
1,000,001 or more	4		--	15

f. Intermediate traders

Table 15 shows a summary of the socio-demographic data on intermediate traders in Kaduna, Benue, Plateau and Kano states. The data is presented in percentages. Generally, most intermediate traders are married men between the ages of 26 and 55 years living in rural and semi urban areas. Trading is the primary occupation of 71% of respondents in Kaduna, 67% in Benue, 60% in Plateau, and 40% in Kano. The level of education of the intermediate traders varied from one state to another with the more educated traders being in Benue, Kano and Plateau. In these states, more than two-thirds of the respondents had completed at least secondary school. Most intermediate traders in Kaduna (57%) and Benue (100%) have annual incomes of less than ₦100,000, while majority in Kano (60%) have annual incomes of between ₦100,000 and ₦500,000. About 30% of intermediate traders in Kano have annual income over ₦500,000.

Kaduna State: Table 15 shows that intermediate trading in Kaduna state is dominated by married men living in semi urban (71%) and rural (14%) areas. About 93% of the traders are men, about 86% are married and mostly (94%) between the ages of 26 and 55. Many (57%) of them had spent less than 10 years in the business. Many of the traders (43%) do not have more than primary school education, about 29% had completed secondary school education and about 14% had tertiary education. More than 70% of the traders have household sizes greater than 5. Trading is the primary occupation of more than 70% of those engaged in intermediate trading. About 57% of the traders earn less than ₦100,000 annually from trading, about 21% earn between ₦100,000 and ₦500,000 and 14% earn more than ₦500,000.

Benue State: Table 15 shows that majority of intermediate traders in Benue state are married men and women. About 50% of the traders are men and 50% are women, about 67% are married and 50% are between the ages of 26 and 55 years. Intermediate traders are found mainly in rural (50%) areas of Benue. About 50% had spent 5 years or less in trading. About 67% are educated; about 50% had secondary school education and 17% had tertiary education. More than 80% of the traders have household sizes greater than 5. Trading is the primary occupation of more than 65% of those engaged in intermediate trading, while processing is the primary occupation of about 17% of the respondents. All the traders earn ₦100,000 or less annually from trading.

Plateau State: Table 15 shows that intermediate trading in Plateau state is dominated by married men living mostly (50%) in semi-urban areas. About 80% of the traders interviewed are married, all (100%) are men and about 70% are between the ages of 26 and 45. Plateau state has a relatively high proportion of old aged traders compared to other states, with about 30% of the intermediate traders aged more than 56 years. A lot (50%) of them had spent their adult lives in trading. About 10% of the traders do not have more than primary school education, about 50% had completed secondary school education and only about

40% had tertiary education. About 70% of the traders have household sizes more than 5. Trading is the primary occupation of about 60% of those engaged in intermediate trading, while processing is the primary occupation of about 20% of the respondents. About 10% of the traders earn less than ₦100,000 annually from trading, about 10% earn between ₦100,000 and ₦500,000 per annum, while about 30% earn more than ₦500,000 per annum.

Kano State: Table 15 shows that majority of intermediate traders in Kano state are men (70%) and married (90%). They are mostly (90%) between the ages of 25 and 55 years but only half of them (50%) have spent more than 11 years in trading. All the traders live in semi-urban areas. About 20% of the traders had primary or no education at all, 20% had secondary education and 60% had tertiary education. About 80% have household sizes greater than 5. About 40% of the traders have trading as their primary occupation, 30% have farming as primary occupation, 20% have civil service and 10% have crafts. About 20% of the traders earn less than ₦100,000 annually from trading, about 60% earn between ₦100,000 and ₦500,000 and 20% earn between ₦500,000 and ₦1 million.

Table 15: *Background information on Intermediate traders involved in the enumerative survey*

Characteristics	Kaduna (n=14)	Benue (n=6)	Plateau (n=10)	Kano (n=10)
Residence				
Urban	--	--	10	--
Semi urban	71	--	50	100
Rural	14	50	--	
No response	14	50	40	
Sex				
Male	93	50	100	90
Female	7	50	--	10
Marital Status				
Single	0	17	20	20
Married	86	67	80	70
Divorced	--	17	--	--
Years spent in business				
5 years or less	36	50	10	40
6-10 years	21	33	40	10
11-15 years	14	0	20	10
16-20 years	14	0	20	40
21 years or more	7	0	10	0
Current age of respondents				
Less than 26 years	7	17	0	0
26-35 years	36	33	30	10
36-45 years	29	0	40	40
46-55 years	29	17	0	40
56 years and above	0	17	30	10
Highest level of education completed				
Primary	7	33	10	10
Secondary	29	50	50	20
Tertiary	14	17	40	60
None	36	0	0	10
Number of household members				
Less than 5	29	17	30	10
5-15 members	50	83	50	50

Characteristics	Kaduna (n=14)	Benue (n=6)	Plateau (n=10)	Kano (n=10)
16-20 members	21	0	10	20
21 members or more	0	0	10	10
Primary occupation of respondents				
Farming	7	0	10	30
Civil servant	0	0	0	20
Trading	71	67	60	40
Craft	0	0	0	10
Processing	7	17	20	0
Services	14	0	10	0
Housewife	0	17	0	0
Estimated personal income				
Below ₦50,000	21	50	0	10
50,001 – 100,000	36	50	10	10
100,001 – 500,000	21	0	10	60
500,001 – 1,000,000	14	0	10	20
1,000,001 or more	0	0	20	0
Don't know	0	0	20	0
No Response	0	0	30	0

g. Large-scale traders

Table 16 shows a summary of the socio-demographic data on large-scale traders in Kaduna, Benue, Plateau and Kano states. The data is presented in percentages. Generally, most large scale traders of soya products are married men between the ages of 26 and 55 years living in urban and semi urban areas. The exception is in Plateau where there are substantial proportions of the traders who are women, single, or less than 26 years old. The level of education of large scale traders is higher than those of small scale traders in all the states. Trading is the primary occupation of most of the respondents with varied annual incomes. The richer traders seem to be in Kaduna and Plateau states.

Kaduna State: Table 16 shows that large scale traders of soya products in Kaduna state are mostly men (83%) living in semi urban (58%) and rural (33%) areas. About 58% of the traders are married and mostly (83%) between the ages of 26 and 55. Most of them had spent their adult lives in trading. Although a significant proportion (33%) of the traders had no formal education, more than 53% had at least secondary school education and 25% had tertiary education. More than 85% of the traders have household sizes greater than 5. Trading is the primary occupation of more than 91% of those engaged in trading of soya products. Only about 25% of the traders earn less than ₦100,000 annually from trading, about 33% earn more than ₦500,000 and 8% earn more than ₦1 million.

Benue State: Table 16 shows that large scale traders of soya products in Benue state are diverse, evenly divided between men and women, 50% are married, 17% are divorcees and 13% are unmarried. They are mostly (83%) between the ages of 36 and 55 years, living in urban (50%), semi urban (17%) and rural (33%) areas. Most of them had spent their adult lives in trading. Most are educated; 50% had secondary school education and about 17% had tertiary education. About 50% of the traders have household sizes greater than 5. Trading is the primary occupation of more than 50% of those engaged in trading of soya products with about 50% earning less than ₦50,000 and only about 17% earning between ₦100,000 and ₦500,000.

Plateau State: Table 16 shows that large scale trading of soya in Plateau state involves a lot of women (55%) and unmarried people (45%) living mostly (82%) in semi urban areas. The

traders are relatively young and well educated. They are aged less than 35 years; 82% had at least secondary school education and 36% had tertiary education. Trading is the primary occupation of about 82% of respondents. About 27% of the traders earn less than ₦50,000 annually from trading, about 18% earn between ₦100,000 and ₦500,000 per annum, about 27% earn between ₦100,000 and ₦500,000 and about 27% earn more than ₦1 million per annum.

Kano State: Table 16 shows that married men make up 90% of large scale soya traders in Kano state. They are all between the ages of 25 and 55 years and most of them (90%) have spent less than 11 years in soyabeans trade. About 90% of the traders live in semi urban areas. About 50% of the traders had primary or no education at all, 30% had secondary education and 20% had tertiary education. About 60% have household sizes greater than 8. About 70% of the traders have trading as their primary occupation. Most of them (80%) earn between ₦50,000 and ₦100,000 annually from trading and about 10% earn more than ₦1 million.

Table 16: *Background information on large scale traders involved in the enumerative survey*

Characteristics	Kaduna (n=12)	Benue (n=6)	Plateau (n=11)	Kano (n=10)
Residence				
Urban	8	50	0	0
Semi urban	58	17	82	90
Rural	33	33	9	10
No response	0	0	10	0
Sex				
Male	83	50	36	100
Female	17	50	55	0
Marital Status				
Single	25	33	46	10
Married	58	50	46	90
Separated/widowed	8	0	0	0
Divorced	--	17	--	--
Years spent in business				
5 years or less	0	0	73	50
6-10 years	33	67	28	40
11-15 years	33	33	0	10
16-20 years	8	0	0	0
21 years or more	25	0	0	0
Current age of respondents				
Less than 26 years	0	17	36	0
26-35 years	33	0	64	30
36-45 years	25	67	0	20
46-55 years	25	17	0	50
56 years and above	8	0	0	0
Highest level of education completed				
Primary	8	33	10	30
Secondary	33	33	46	30
Tertiary	25	17	36	20
None	33	17	9	20
Number of household members				
Less than 5	17	50	46	40

Characteristics	Kaduna (n=12)	Benue (n=6)	Plateau (n=11)	Kano (n=10)
5-15 members	50	33	46	10
16-20 members	17	17	0	30
21 members or more	17	0	--	20
Primary occupation of respondents				
Farming	--	17	--	
Civil servant	8	--	--	20
Trading	92	50	82	70
Processing/craft/retired	--	17	9	--
Housewife		17	9	11
Estimated personal income				
Below ₦50,000	8	50	27	10
50,001 – 100,000	17	33	18	80
100,001 – 500,000	42	17	27	0
500,001 – 1,000,000	25	--	--	--
1,000,001 or more	8	0	27	10
Don't know				
No Response				

4. KADUNA STATE

Agriculture is very important to the economy of Kaduna State. The major crops cultivated in order of importance are soya, maize, guinea corn, millet, and cow pea. Soya is considered the most important crop because of its high nutritive value, its positive effect on soil fertility and high return on investment. Soyabean is a major crop in nine local government areas namely Giwa, Jamara, Zango-Karta, Dere, Kachia, Kaura, Sanga, Brinin-Gwari and Kaura Local Government areas. Kaya, in Giwa LGA is popularly referred to as the home of Soya in Nigeria. Soyabean and soya products also feature prominently in agricultural trade in Kaduna state. This is mostly due to the high return on investment realised in soya trade and the high demand for soya in the livestock industry and oil mills. Kaya community and environs move their soya products to Giwa market while Kaura and Zango Karta move their soya products to Lere market to sell. Other majors markets of soya products are in Sabo, Kaduna South and Kaduna North Local Government areas.

4.1 Farmers

Production: Farmers generally practice mixed farming and claim not to require chemical fertilizers when other crops are mixed with soya. Average hectarage per farmer is 8 hectares and as at 2006 record of KADADP had the yield per hectare for soyabean as 1.4 tonnes. No part of soya is wasted because the leaves and husk are used as feed for cattle, poultry and pigs.

Five varieties of Soya are cultivated by farmers in Kaduna (see box). The farmers who participated in the FGDs indicated preference for the varieties from IITA to those from IAR because they are more resistant to disease. IITA brought about 8 species to the community but the farmers chose only three that were high yielding and resistant to disease. The enumerative survey however indicated that the most preferred varieties are the white and brown ones. More than 34% of the farmers indicated that Samsoya 2 is the most preferred variety of Soya beans because of its good taste followed by TGX 1448-2e.

The farming operations undertaken by farmers involved in soyabean production are land clearing, ploughing, ridging, planting, weeding, harvesting and threshing. Most of the operations are undertaken manually

using hoes and cutlasses but ploughing and harrowing are undertaken using draft animal technology (cattle). Farmers plant about 50kg of soyabean seeds on a hectare of land. The seasons and timing of soyabean farming operations are presented in the Table 15. Most farmers (76%) plant soya between May and July. Many farmers store their produce on the farm and many keep their produce in farm houses (51%).

Varieties of Soyabeans

- Five Improved Seeds varieties were introduced by the IITA and IAR, ABU Zaria
- TGX 1448-2E – milky or gold colour, rectangular shape and is late maturing.
- TGX 1485 – milky or gold colour with black mouth & another soyabean is green) which were introduced by IITA. It is late maturing
- IAR introduced (SAMSOY 1 and SAMSOY 2) and they both white.
- Samsoy 1 & 2 – it is big in size and it has circular shape and were introduced by IAR, Samaru
- The best grades are white and milky colour which are more sought after.
- Quantity of seed planted per hectare is 50kg.

Table 17: Seasonal Calendar for Soyabean Cultivation:

Activity	Month	
	Early Maturing	Late Maturing
Land clearing	March & April	March & April
Ploughing	May ending & early June	May ending & early June
Harrowing	May ending & early June	May ending & early June
Ridging	May ending & early June	May ending & early June
Planting	June	June
First weeding	2 weeks after planting	2 weeks after planting
Second weeding	2 weeks after 1 st weeding	2 weeks after 1 st weeding
Remodging	1 week after 2 nd weeding	1 week after 2 nd weeding
Harvesting	August ending to early September	Nov/Dec
Threshing		

A bag of soyabean is threshed for about ₦400 and the costs of land cultivation activities per hectare in Kaduna are as follows:

- land clearing is ₦1,000,
- harrowing is ₦3,000,
- ridging is ₦2,500,
- planting is ₦1,500,
- weeding is ₦3,000,
- harvesting is ₦3,000
- and hired labour per day is ₦550.

Farm Inputs Many of the critical inputs required in Soya beans farming are available in the state but about 64% of farmers buy inputs from the open market because they are usually not available in government designated centres. Most farmers indicated ready availability of local seeds (68%), improved seeds (55%), fertilizer (61%), and agro chemicals (59%). About 55% of the farmers can afford the fertilizer, 56% can afford the agrochemicals and 43% are using improved seeds. About 33% of the farmers believe they can make more money if they use improved technology in their farming operations but only about 24% indicated that such technology is available for their activities. Government extension services are limited in Kaduna. Only about 31% of the farmers indicated that extension officers come around and only about 23% claimed to have been trained on improved technology. Private extension services are not common. Only about 16% of the farmers indicated that private sector training is available to them. Main sources of information are fellow farmers (44%), bean buyers (31%) and farmers' associations (5%). Family labour is important in soya cultivation with an average of between 2 and 5 male and female members of the household participating. Hired labour, mostly in the form of adult male, is reported to be available by 92% of the farmers. Improved availability of credit seems to significantly make agrochemicals affordable for male farmers. However, this did not make other inputs more affordable

Quality and standards Only about 39% of the farmers indicated that there is a standard product and only 23% considered "quality" as a determinant of standard. Many farmers agreed however that there is a premium price for high quality (57%) and that buyers attach more importance to quality (63%) than to price (16%). About 80% of the respondents indicated that producing higher quality products is important to them.

Markets A large proportion of the farmers' produce is sold (85%) and just about 15% is either consumed or given out. Most farmers (88%) sell their produce in the market and only about 12% sell at the farm gate or at home. This presumably is to avoid middlemen and ensure better prices. Many farmers sell to wholesalers (57%) and retailers (28%). The average cost per bag of the local variety is ₦3,590.

Mudu is the standard measure in soya trade. One 100 kg bag is made up of 120 Mudu. The market price of soya beans is determined by market forces hence during the peak season soyabean sells for ₦3,000 per 100kg while it is sold for ₦4,500 to ₦5,000 per 100kg off season. There are no middle men between farmers and traders in Kaya but in Zonkwa some middle men buy at farm gates and sell in markets in Saminaka and Pambegua.

Transporting the farm produce Farmers have access to a wide range of means of transport to move their produce to the market. The most commonly mentioned is the truck (68%) followed by animal powered transport (17%), motorcycle (15%), bus (15%), cart (15%), and head portage (13%). Very few farmers own the means of transport they use. About 8% own trucks while 4% each own animals and carts. Animal powered transport is the cheapest means of transportation in Kaduna at ₦70 to transport a bag of beans over a distance of 5.6 km. The fee is at an average of ₦224 travelling a distance of about 15 kilometres. The important cost items to farmers were indicated to be transport by 80% of the farmers, taxes by 41%, storage by 33% and marketing by 28%.

Improving farming investment Entry into Soya beans farming business is relatively easy in Kaduna state as observed by 84% of the farmers. One of the ways by which investment in Soya farming can be made more rewarding is by having access to funds to finance critical stages of the business such as harvesting and delayed sales. Only about 21% of the farmers indicated that credit was available and a larger percentage (40%) said that credit was difficult to access. Farmers have thus largely depended on their own little savings to finance the various phases of Soya farming.

Conflicts & problems There is very little conflict in Kaduna state with respect to soya farmers. The issues leading to conflicts that were mentioned by farmers are land encroachment (7%), competition over resources (12%), and marital issues (13%). About 7% of the farmers identified water and firewood as major problems. Conflicts are resolved through intervention of the elders. About 24% of the farmers indicated that HIV/AIDS is a problem and believe that awareness creation is necessary to deal with it.

Challenges faced by farmers

Farmers in Kaduna are faced with a number of challenges which include:

- Poor storage of seeds due to lack of warehouses to store seeds before planting.
- Inconsistent rainfall: Low rainfall affects yield substantially while excessive rainfall reduces quality.
- Lack of credit
- Insecurity on the highways including armed robbery and other security issues
- Poor accessibility to fertilizer (this was indicated by 55% of the farmers).
- Non-availability of tractors which was indicated by 13% of the farmers and
- Inability to reach buyers which was indicated by 15% of the farmers.

To cope with these challenges, farmers rely on supply of seeds from IITA and IAR and in robbery cases, they support one another with gifts.

4.2 Processors

Soyabean processors in Kaduna can be grouped into household processors, artisanal processors and industrial processors. Household processors are predominantly women aged between 35 and 49 years with an average age of 45 years and a minimum of 5 years experience in the business. Artisanal processors are also predominantly women aged between 12 and 65 years with an average age of 34 years and a minimum of 8 years experience in the business. Some of them have been in the Soya processing for up to 23 years. Industrial processors are big companies based in Kaduna and have been in business for between 5 and 20 years.

a. Household Processors

Household processors are mostly small operators who obtain soyabeans from their personal farms and the local market and process into milk, cake/awara, daddawa cheese and soya soup. About 60% of the processors produce soya cake, 30% produce soya milk, 9% produce animal feed and 9% produce daddawa. There are two main varieties of soyabean in the market, white and brown, the most sought after being the white variety. Soya milk is the most important product of soybean followed by cake and daddawa. Soya soup is produced mostly for household consumption. The processors use household and traditional equipment such as plates, aluminium pots, firewood, stoves but grinding of the soyabean is usually done by service providers using mechanical grinders. The products are stored in small containers of less than half a litre. Demand and production are seasonal and the customers are individual households in the neighborhood. About 64% of the processors produce cake all year round but only about 18% produce soya milk all year round. The processors also process ground nut oil but soya has a higher return on investment and is therefore preferred.

The steps used in processing soyabean to milk are as follows:

- Wash the soyabeans
- Soak for about 8 hours
- Parboil for 15 minutes
- Grind
- Sieve
- Boil

Unique practices mentioned by processors include: *allow to ferment from 4th to the 5th day, cook Soya daddawa very well, I do not allow my water to remain, I don't keep Soya milk overnight, I grind it and make sure it is very smooth uses of spices*

From 1 kg of soya bean which cost about ₦100, processors obtain about ₦300 worth of milk which is packaged in polythene bags for sale at about ₦100 for 25cl. The product is consumed daily.

The steps in processing soyabean to cake (cake is called 'Awara' in Hausa) are as follows:

- Wash
- Soak for 8 hours
- Grind
- Sieve
- Boil, adding alum or lime water
- Remove water, add ingredients like tomatoes, onion
- Fry
- Place on grinding stone and compress to remove excess water
- Cut into required sizes and fry again

From 1 kg of soyabean which costs about ₦100, about ₦250 worth of awara is obtained and it is also consumed daily.

The process in making daddawa is similar to the two above except that after water is drained it is covered with nylon bag and allowed to settle for 3 days then dried for a day, packed and covered overnight, pounded and packaged into desired shapes. It can be held for up to 3 days. From 1 kg of soyabean which costs about ₦100, about ₦200 worth of daddawa is obtained. Seed coat removed in producing awara is used for animal feed or mixed with maize/corn to make “pupo or tuwo”

The price of soyabean is determined by market forces. During the peak season the price of 75kg bag is between ₦6,000 and ₦7,000 while during the off season the price is between ₦8,000 and ₦9,000. The price of milk during peak season is ₦15 for ½ litre while in the off season it is ₦20.

Although credit is not readily available, the Goni Gora Women Purpose Cooperative was able to source for loan worth ₦500,000 for their members from NARCDB at 8 percent interest rate.

Challenges faced by Household Processors

Erratic electricity and power supply which made it difficult to extend the shelf life of soya products was the main challenge faced by household processors. To cope with this, processors consume whatever is not sold. Another challenge was lack of any form of support from the government.

b. Artisanal Processors

Artisanal processors are mostly women processing soya beans. They use household and traditional equipment such as plates, pots, firewood and stoves for processing soyabeans into milk, awara, daddawa, soya cake, soya milk, soya oil and soya meal. Only 5% own mechanical grinders and they also serve as service providers to the bulk of processors. They obtain soyabeans from their husbands' farms and the local markets, and sell the products from home and in the local market. Like the household processors, they grind the soyabeans using mechanical grinders on service for fee basis with service providers at about ₦30 for two mudus. They claim to engage in soya processing because it provides good returns on investment and doubt if they will ever abandon the business. Most of the processors (92%) process soya for the market, the other 8% process as service for others. About 29% indicated that undertaking processing personally is more profitable than using a service provider.

Most artisanal processors do not believe that there are quality issues in soya products. Only about 29% of the processors indicated that there are grades in the soya beans produced, about 10% indicated that there are grades in the cake and 5% indicated that there are grades in the milk. Only about 24% of artisanal processors know that adulterated products are in the market. Adulterated meal and cake are identified through smell and texture while adulterated oil is identified through smell.

Only about 24% of the processors adopt improved/unique practices and only 5% are using improved technology which they consider to increase the speed of operations. About 48% of the processors indicate likeness for the improved technologies. About 10% indicate that training on improving processing technology is available and they have attended such training. The training was on electricity/power generation and water extraction systems. They considered the training effective and affordable. Half of those who participated in the training paid their way.

Only about 14% of the processors indicated that credit facilities are available to processors in form of loan from banks. Only about 29% process soya all year round. On the average, soya processing is done for about 20 days in a month and 8 months in a year. About 76% of

the processors indicated that labour is available for these activities. More men than women are utilised for processing activities. Transportation of materials is done using taxi (19%), motorcycle (19%), bus (10%), truck (10%) and human portage (5%).

About 38% of processors have access to information on quality of products. Such information is obtained through their association (5%), farmers (5%) and other processors (76%). About 76% of the processors believe that quality of soya products is more important than price to consumers while about 19% believe that cost is more important. About 62% strive to improve the quality of their products.

Challenges faced by Artisanal Processors

Artisanal processors face some peculiar challenges, which include:

- Erratic supply of electricity which makes storage of the products for extended periods difficult, they therefore consume whatever they are unable to sell within a day.
- Preservation of their processed stock: The shelf life of milk and cake is a day and with no system for preservation, it is difficult to store.
- Over heating during cooking can result in low quality product and there is no mechanism to mitigate it.
- Delay in grinding can also lead to low quality products.
- Credit is not available to processors
- Poor market
- High transportation costs.

To cope with some of these challenges, processors rely on membership of cooperatives to which they make regular contributions and have access to interest free funds (on religious grounds) on rotational basis. The cooperatives also buy and supply soyabeans to members on credit.

c. Industrial Processors

Industrial processors of soya in Kaduna obtain their raw materials through middlemen/buying agents, contractors and suppliers from Kano, Kaya, Maigana and Saminaka as well as from Katsina and Zamfara states. They are usually large scale operations processing soya into layers marsh, growers marsh, chick marsh, broiler starter and finishers, and fish feed. They also process other crops such as maize, rice, beans and millet. They are involved in soya processing because it offers high returns on investment. Most of the processors (83%) process soya for the market but a small fraction (17%) process as service to others. Their main customers are feed millers and poultry businesses from Kaduna and other parts of the country. They pay as much as ₦60,000 for 1,000kg soya cake and meal.

There are different varieties of soya in the market packaged in several sizes ranging from 25kg, 50kg to 100kg. The variety bought affects the quality of products hence the processors insist on clean beans. The best and most sought after variety is the white variety. About 50% of the processors indicated that there are grades in the oil produced, 83% indicated that there are grades in the feed and 33% indicated that there are grades in the cake. High quality products are obtained by sourcing good soya bean and maintaining good hygienic processing conditions. Some of the concerns of the processors include contamination of soya oil with petroleum products and transport issues which are not currently being experienced but are talked about. It was alleged that there is serious adulteration of soya bean in Benue state which has necessitated that processors in Kaduna install quality check gates in their factories. It is believed that the issue of low weighing soya sacks experienced in Kano and Kaduna markets can be addressed by adopting uniform measuring system. Effective quality control measures can limit adulteration. Other issues cited as very important and serious in view of NAFDAC's surveillance activities include hygiene, health of workers

and safety in processing plants. About 67% of the processors adopt improved practices such as after sale service, customer care, pelletising and delivery services.

The equipment used by processors include milling machines, grinding machines, hammers, mixers, crushing machines, oil presses, cleaner, extraction plant, mixer, incline anger, oven, pelletising and refining equipment, packaging plants, lorries, trailers and pick-up vans. Accessibility to parts and maintenance are not problems for processors but funding of repair activities is usually problematic. About 67% of the processors indicated that credit facilities are available to processors in form of loan from banks (50%) and from their association (17%) at interest rate of about 7%. Most processors (83%) however do not find it easy to obtain credit.

Only about 33% of processors have adopted improved technologies for processing soya because of increased rate of operations and improved product quality. About 67% of processors indicate willingness to procure improved technologies. About 83% of the processors indicate that labour is readily available for their activities in the peak and off-peak seasons. Raw materials, considered relatively expensive, are identified as the biggest cost item by 67% while 17% consider transport cost to be the biggest cost item. Actions taken to address areas of high cost include intervention by union, purchasing own vehicle for transportation, stock-piling, bulk purchasing and lobbying for government support.

Only about 17% of industrial processors have knowledge of the existence of adulterated products in the market. Identification of adulterated meal and cake is by smell and texture. About 83% have access to information on quality of products through their association (67%) and other processors (17%). About 67% of the processors believe that quality of soya products is more important than price to consumers while about 17% believe that they are equally important. About 83% indicate that training on soya product quality is available but only 67% have attended such training. About 83% are striving to improve the quality of their products and this is being achieved through quality control processes (17%), avoidance of contamination (17%) and adherence to the standards of SON (33%).

Demand for soya products is high therefore there is usually no need for long term storage. However, there are warehouses available for unsold stock. Raw materials are transported to factories in trucks. Information about market prices is obtained through constant interaction with neighboring markets.

Challenges faced by Industrial Processors

The challenges faced by the industrial processors include:

- About 17% consider poor market as their major challenge.
- Energy supply: Most times the factories are run on generators because of irregular supply from the national grid. This raises the cost of production
- Continuous increase in prices of petroleum products.
- Cost of credit is high.
- There are security issues on the high ways particularly armed robbery.
- There is multiple taxation by the various government agencies

4.3 Traders

Several markets were visited during the conduct of the FGDs and enumerative survey, which includes the large market in Maigana, the feeder market in Kawo and the small “Monday” market. The main challenges faced by marketers are related to transportation and security on the high ways. The traders of soya products in Kaduna can be broadly categorised as small, intermediate and big traders.

a. Small scale traders

Small scale traders are predominantly women aged between 20 and 55 years with an average age of 38 years. They had spent between 5 and 40 years in the community, with at least 4 years experience in soya trading. Some had also been involved in soya trading before coming to the community. Soya is a commodity of choice for traders because of high demand and a high return on investment. There are no reports of family conflicts or health related problems as a result of their involvement in soya business.

The units of measure used in trading in soya beans in the state are 100kg bags (stated by 67% of traders) and mudus (stated by 19% of traders). The traders do not have weighing scales. They are only equipped with their bags and mudus. About 67% trade in the improved samsoya varieties while about 33% trade in the local varieties. The beans are available in three grades (Grades 1, 2, 3) but most traders patronize the grade 1. About 61% of traders purchase beans from farmers, 10% from agents and only about 6% each from the farm gate and wholesalers and 4% from associations. About 45% of traders sell in local markets, 16% within the local community and 4% to industries. Of those that sell in the markets, 57% sell in the central market, 14% in the rural market, and only 2% in the in the feeder markets.

Most traders (69%) indicated that they trade in soya because it is profitable, 30% are in the trade because it is in high demand and only 16% are in the business because the beans are available in the state. Most traders (more than 95%) believe that entry into soya beans trading is free with equal opportunities and safety guaranteed.

Trading in soya is very lucrative and most traders who started trading in grains such as maize, rice, beans, and millet are now more involved in soya trading and believe that they will remain in the business. They use traditional methods of trading and marketing with basic measuring basins as their only tool/equipment. They have no access to credit which they desire eagerly. Demand and production of soya are seasonal however they are able to sell everything they buy as demand is high.

Soya sells for different prices in different markets around the state. Small scale traders in Kakuri buy soya from Kaya in Giwa LGA of Kaduna State, Sarikin Pawa in Niger State, etc and transport to Kaduna in trucks. White soyabean is bought for ₦4,400 per 75kg bag and brown soyabean for ₦4,300 per 75kg bag. Information about market prices is obtained through constant interaction with neighboring markets.

Standard measures for soyabean:

- Mudu and tiya but it depends on location (tiya is used in Kaya while Mudu is used in Maigana axis).
- 1 mudu = 1.2 – 1.3kg.
- 2 ½ mudus = 1 tiya A Tiya is 2.5 kg.
- 40 -42 Tiyas make 100kg bag. Companies at the point of purchases of the product from either the farmers/ traders measure on their own scale to get actual contents before payment.
- 100kg bag is supposed to be 100 mudus but 99% of the bags in the market are 85kg.
- The best standard measure of bag in the market is 85kg (according to ADP) and you can find 40 tiyas in that bag.
- Industrial processors measure with weighing scale to get 100kg of soyabean.

Traders store soya in trays (74%), silos (6%) and bags (4%) and keep this at home (74%) and shop (8%) and some other store in the market and cover with tarpaulin. These beans are usually held for only some days. Only a relatively small percentage (38%) believes that quality is an important issue but it is considered to be more important than price. They indicated that they obtain premium price for good quality. About 88% of the traders believe that consumers are most affected in their choice by quality and only 10% believe they are most affected by price. Most traders (88%) target household consumers, about 30% target

wholesalers, 28% target retailers, 22% target livestock farmers, 20% target industrial processors and only 10% target artisanal processors.

About 90% indicated that male labour is available for loading soya beans at about ₦478 per bag. Most traders (78%) use buses to transport beans and only smaller proportions (18%) use human portage, cart (8%) and motorcycle (8%). Bean traders overwhelmingly (76%) consider transportation costs to be the highest transaction cost in trading in soya beans being much higher than handling (2%), storage (8%) and marketing (4%) costs. They believe these costs can be reduced with the intervention of their association which can provide trucks, stabilize transportation, ensure uniformity in transport fares, negotiate prices on behalf of traders and give loans to members.

Only about 16% of traders consider that credit is available and accessible and only about 4% buy on credit. Those who have obtained credit obtained such from their association (67%) and friends (12%). More than 53% of the traders however sell on credit to mostly members of the community but rarely to processors.

Most traders (92%) own the products they trade in and they consider such ownership as important for profitability. They have about half of their working household involved in the business with them. Most (69%) have experienced increased trends in their incomes in recent years.

The main constraints stated are security in stalls (49%), getting customers (30%), cost of materials (35%) and association fees (14%).

Challenges and coping strategies

Small scale traders face a number of challenges which include the following:

- The “Monday” market in Kakuri, Kaduna South LGA is an open market with limited storage facilities and poor security.
- Continuous increase in prices of petroleum products lead to increases in transportation costs.
- Lack of credit.
- Security on the high ways is poor with high incidence of armed robbery and other problems. They cope with this by managing and supporting one another in cases of robbery.
- Multiple taxation levied at the different levels of government

Traders are not concerned about environmental issues but are aware that forest degradation is a major environmental issue that needs to be addressed, however, they believe their business has very little to do with it and HIV/AIDS is still not discussed openly.

b. Intermediate Traders

Intermediate traders in Kaduna state trade in meal, cake, livestock feed and soya oil. The units of measure used in trading are 25kg bags (64%), 50kg bags (7%), 100kg bags (7%) and 25 litre jerry cans. The equipment used are weighing scales (43%) and mudus (21%). Only about 36% obtain these commodities from their communities. The sources of cake are farmers (7%) and processors (67%); meal is sourced from wholesalers (21%) and processors (36%); and oil is sourced from wholesalers (21%).

Only 14% of the traders indicated that they trade in feed because it is profitable while 36% indicated that they trade in oil because it is profitable and 7% because of high demand. Most traders (93%) believe that entry into soya beans trading is free with equal opportunities (21%). The main constraints to trading in cake were identified to be cost of commodity (14%), registration fee (7%), stall (14%), and securing customers (7%). Constraint to meal

trade was identified to be cost by 57%. About 50% indicated that they determine the price of their products.

Intermediate traders sell cake at central market (14%) and site (7%); meal at central market (57%) and site (14%) and oil at central market (36%). These sales are made to household consumers (29%), artisanal processors (14%), industrial processors (14%) and wholesalers (7%). About 29% believe that quality is more important for cake than price and only 21% indicated that they obtain premium price from good quality of cake. Only 14% indicated that marketing higher quality product is important. About 36% indicated that there are adulterated soya products in the market. Adulterated meal is identified by texture (36%) and smell (14%), adulterated cake is identified through texture (14%) and adulterated oil is identified through smell (29%)

c. Large-Scale Traders

Large scale traders are mostly males between the ages of 25 and 62 years with an average age of 43 years. The minimum number of years spent in trading by this group in the community is 8 years while they have spent between 18 and 32 years in the community. As with the small scale traders, there is no family conflict or health related problems as a result of being in the Soya business. Again, the reasons for great interest in the business are the high profits and high return on investment associated with the business. Like the small scale traders, they trade in soya, maize, rice, beans and millet in that order of importance. They use traditional methods of trading and marketing with basic measuring basins as their only tool/equipment. About 17% of the traders have weighing scales. Other facilities of importance are basically vehicles: lorries, trailers and pick-up vans. Most traders (90%) obtain their commodities from outside their communities and sell in the central market. The units of measure used are 25kg bags (67%) and 100kg bags (stated by 17% of traders).

They have no access to bank credit but belong to cooperative groups which offer interest free credit to their members in the spirit of the Sharia. However, the resources available through the groups are limited making it difficult to obtain credit especially for those in Maigana. The more affluent members also offer assistance to the less privileged.

Profile of Large Scale Traders	
No of participants	9
No of Women in the group	3
Age range (years)	38-60
Average age (years)	44
Years spent in the business	6 – 30
Years lived in community	8 – 60

The traders indicated that they trade in soya because it is profitable (33%) and in high demand (33%). Only 8% are in the business because the beans are available in the state. Most traders (more than 83%) believe that entry into soya beans trading is free with equal opportunities (67%) and safety guaranteed (67%). The main constraints stated are unavailability of stalls (25%) and cost of materials (17%).

Demand and production are seasonal so traders keep their produce till prices appreciate before they sell. There is indeed some evidence of hoarding to force prices up. They buy Soyabbeans from Kaya in Giwa LGA in Kaduna State, Katsina and Zamfara states and transport to Maigana market in trucks. Payments for transportation are made according to volume in bags.

About 50% believe that there are quality issues in soya feed trade, about 75% believe that quality is more important than price and 69% indicated that they obtain premium price for good quality. About 75% of the traders believe that consumers are most affected in their choice by quality than price. Information about market prices is obtained through constant interaction with neighboring markets. Prices are fixed by the District Head for each market day on the advice of Sarkin Kasuwa (Chief of the Market) who consults with the District Head

the day following every market day to fix the price for next market day. The market days are Thursdays.

The buying & selling prices		
Seasons	Buying prices	Selling prices
Peak	₦2,000 – ₦2,500 per 82kg / 84kg / 89kg	₦3,000 per 82kg / 84kg / 89kg
Off Peak	₦4,000 per 82kg / 84kg / 89kg	₦4,800 per 82kg / 84kg / 89kg

They are able to sell everything they buy because demand is more than supply. The current selling price for white and brown soyabean is ₦4,500 per 82kg / 84kg / 89 kg bags although the white soyabean is the preferred variety. Their customers are feed millers from Kaduna, locals, and others around the country, including Ibadan.

About 58% indicated that male labour is available for loading soya. Large scale traders (50%) consider transportation costs to be the highest transaction cost in soya trade. About 16% of traders claim that credit is available and accessible, 50% indicated that they buy on credit and only about 8% indicate the commercial bank as the source of such credit. Most traders (92%) consider ownership of their product as important for profitability and about 91% have experienced increased trends in their incomes in recent years.

Challenges and coping strategies

Challenges faced by large scale traders include the following:

- Lack of security in the market.
- Continuous increase in prices of petroleum products.
- Lack of credit
- Security on the high ways which include armed robbery.
- Multiple taxation levied at the different levels of government.

They have been coping by supporting one another in cases of robbery through provision of interest free loans by rich members to the less privileged members. Large scale traders are aware of environmental issues like forest degradation and believe that the issues should be addressed but do not think that those issues affect their business directly. They are aware of the dangers of HIV/AIDS but do not discuss it openly.

5. BENUE STATE

Benue state is popularly referred to as the food basket of the nation. Its central and strategic location gives it some advantage in crop agriculture. The people of Benue state, men and women, are predominantly farmers cultivating mainly tubers (especially yam) and fruits for cash. Other economic crops produced in the state include potatoes, tomatoes and okro (especially for women), cassava, soyabean, bambara nut, sorghum, maize and melon. Soya production suffered a decline in the state in the last three years because of the promotion of cassava production particularly for the export market which led to a massive shift by farmers from soya production to cassava production. Most of these farmers have however been unable to realize their expectations because of the glut created in the local cassava chips market.

5.1 *Farmers*

The data obtained on soya cultivation in Benue state is presented in appendix 1. Soya bean farming is popular in Benue state because of its diverse use, the low requirements for inputs such as fertilizer and agrochemicals and its low requirement for attention. Soya farmers in the state on the average devote the third largest area of their farms to soya cultivation (2.3 hectares), the crops with the largest areas being maize (3.8 hectares) and cowpea (2.4 hectares). They are also involved in the production of tomatoes (2.2 hectares), groundnut (1.9 hectares), sorghum (1.9 hectares) and rice (1.1 hectares) in that order of importance

Only few soyabean farmers cultivate the crop alone, most cultivate other crops. They cultivate 4 varieties of soya: one local variety, two improved varieties obtained from IITA (TGX 1448-2E and TGX 536-2E) and an improved variety from IAR, Samaru (Samsoy 2) but two varieties are most commonly cultivated, Samsoy 2 specie and TGX 536-2E. The Samsoy 2 is the more popular of the two. It is yellowish in colour, smaller in size, usually weighs more than the second variety and is considered to be of higher value. Taste is indicated as the most important reason for preferring the Samsoya variety. The BNARDA (Benue Agricultural and Rural Development Authority) variety is yellowish-green, larger in size and considered to have a lower nutritional value. Rain fed farming is practiced with no irrigation facilities used for soya production in the state. This subjects the farmers to the vagaries of the weather with low harvest prevalent when rainfall is low. Most farmers (63%) plant soya between May and July and obtain an average yield of 13.6 bags of 50kg each, per hectare. Many farmers store their produce on the farm and many keep their produce in farm houses (51%).

The farmers have little problem planting Soya because it does not require too much attention during its growth season; also the use of fertilizers can be minimized. Farmers in Yandev for instance had family size ranging between 9-13 members. They were found to be within the age range of 35 and 50. Few aged farmers (above 60) in Wannune, Tarka local government area, still practice cultivation along with their children

Farm Inputs Many of the critical inputs required in Soya beans farming are available in the state but only 36% of the farmers buy the inputs from the open market. Many farmers indicated ready availability of local seeds (47%), improved seeds (86), fertilizer (59%), and agro chemicals (54%). About 44% of the farmers can afford the fertilizer, only 21% can afford the agrochemicals but 74% are using improved seeds. About 37% of the farmers believe they can make more money if they use improved technology in their farming operations but only about 13% indicated that such technology is available for their activities. Government extension services are limited in Benue. Only about 39% of the farmers indicated that extension officers come around and only about 19% claimed to have been trained on improved technology. Private extension services are not readily available. Only about 4% of the farmers indicated that private sector training is available to them. Main sources of information on inputs are fellow farmers (31%), bean buyers (24%) and association (10%).

Family labour is important in soya cultivation with an average of between 2 and 5 male and female members of the household participating. Hired labour, mostly in the form of adult male, is reported to be available by 92% of the farmers.

Access to credit is significantly affected the availability and affordability of fertilizer to farmers in Benue. Male farmers with access to credit were also those who considered fertilizer available and/or affordable. Although access to credit improves availability of local seeds, it did not significantly affect availability of improved seeds. It was also observed that improved access to credit for female farmers did not significantly correlate to improvement in affordability and accessibility to inputs

Quality and standards Only about 20% of farmers indicated that there is a standard product and only 17% considered “quality” as a determinant of standard. Many farmers agreed however that there is a premium price for high quality (44%) and that that buyers place more importance on quality (57%) than on price (13%). About 71% of the respondents indicated that producing higher quality products is important to them. Farmers from Gboko believe there is no grading of soyabean by quality, variety or cleanliness. Soyabean is usually bought and sold by its weight with farmers earning income of between ₦25,000-~~₦50,000~~ per annum from sales after retaining the portion for household consumption. There are however some large scale farmers earning between ₦100,000-~~₦500,000~~ per annum for sale of soyabeans. Most farmers claim that they will remain in the business except “it does not rain at all or death takes them away”.

Markets A large proportion of the farmers’ produce is sold (85%), about 9% is consumed and about 6% is given out. Most farmers (86%) sell their produce in the market and only about 14% sell at the farm gate and about 6% at home. This presumably is to avoid middlemen and ensure better prices. Many farmers sell to wholesalers (40%), retailers (31%) and middlemen (27%). The average cost per bag of the local variety is ₦3,800.

There are various bags used in the storage and trading of the produce. The farmers sell in bags to intermediate farmers and traders. Some farmers also act as traders. They buy soya, store and later sell at off-peak season at higher prices or when they need cash. In Wanune, a 25kg of improved variety sells for ₦2,800 while the local variety sells for ₦2,500 while the 50kg bag of improved seeds sell for ₦5,300 and 100kg bag sells for ₦10,600. A 100kg bag of local seed sells for ₦10,000. Farmers also sell in basins or mudus in the markets at ₦1,500 and ₦1,200 for improved and local seeds respectively. Farmers also sell to middle men called “Baranda” who may be farmers or traders in the open market. These middle men store the produce and sell them when the prices rise. Generally price of soya in the market is determined mostly by the middle men or ‘Barnadas’ and is dependent on forces of demand and supply. Most farmers obtain information about the prices from fellow farmers, friends, relatives and middlemen as trading goes on. Thus the income earned by farmers is relatively low.

Transportation and other costs Farmers have access to a wide range of means of transport to move their produce to the market. The most commonly mentioned is the truck (70%), bus (46%), human portage (37%), taxi (23%), motorcycle (21%), and cart (4%). Very few farmers own the means of transport they use. About 6% own trucks while 1% each own buses and motorcycles. As is often the case, it is more expensive to transport a 50kg bag of beans using a bike than by a taxi. The average cost is ₦148 while it is ₦135 for a taxi. It is even cheaper (₦128) with a bus. The important cost items to farmers were indicated to be transport by 81% of the farmers, taxes by 70% marketing by 49% and storage by 27%.

Improving farming investment Entry into Soya beans farming business is relatively easy in Benue state as observed by 84% of the farmers. Credit availability is relatively poor

with only about 49% indicating that they can secure some form of credit. Indeed with respect to accessing credit, only 33% said that it is easy. This means that majority cannot access credit for farming. Farmers therefore fund their farming activities from personal savings, friends, family members, Adashi (local thrift/ loan society). They do not have access to bank credit and have to rely on Bam (a form of cooperative credit), which they find affordable. Loans obtained and the interests payable are paid in three monthly installments. As a result of the small contributions made by each farmer, credit does not go round and is not usually available when needed. Income from sales is low so most of the farmers do not borrow large amounts of money relying mostly on earned money and savings.

Conflicts & problems There is very little conflict in Benue state with respect to soya farmers. The issues leading to conflicts that were mentioned by farmers are land encroachment (10%), competition over resources (4%), and marital issues (7%). About 20% of the farmers identified water and 29% firewood as major problems. About 24% of the farmers indicated that HIV/AIDS is a problem and 44% believe that awareness creation is necessary to deal with it.

Challenges

The greatest challenge mentioned by the farmers is accessibility to fertilizer. This was indicated by 47% of the farmers. They claim to have difficulties accessing fertilizers as a result they buy it for as high as ₦2,500 per bag and have to contend with unreliable service providers who fail to provide services (e.g. tractor services) even when they have been paid for. Other challenges are unavailability of tractors which is indicated by 36% of the farmers, and inability to reach buyers which was indicated by 11% of the farmers. Large-scale farmers have to pay as much as ₦500-₦1,500 per day for labor. Other prominent challenges are drought, pest and disease infestation, inadequate storage facilities, and robbery attacks on their way to and from markets. Farmers also complain of excessive taxation at market points by the government revenue board and market associations (porters) and the lack of industries to buy their produce.

Farmers cope with many of their challenges by joining cooperatives or associations where they are able to obtain credit to finance production activities. To prevent robbery attacks farmers now travel in groups when transporting goods or returning from the market. To avoid transportation risks, stress and high costs, farmers (particularly the small scale farmers) sell their produce in local markets or to traders who then have to take care of transportation. They make efforts to solve problems among themselves and settle dispute that arise among families. They believe that provision of subsidy on farm inputs (subsidy) will greatly affect motivation and production.

5.2 Processors

Processing of Soya in Benue state has created alternative uses of the seed besides direct cooking for consumption. There are household and artisanal processors but no industrial processors. Women dominate processing activities. The age range is from 30-40 years and they have spent over ten years in Soya processing business. Quite a number of these women practiced Soya processing before moving into their new communities and have since lived in the communities over nine years. All the women are married and have an average family size of 6; almost all of them are engaged in one form of Soya processing activity or another. Money realized from the sale of Soya products is used to sustain the family and the rest invested. The business of Soyabeans has not been a problem in the family and they are supported by their husbands.

Artisanal and Household processors living in Wadata, Makurdi local government area and Wanune, Tarka, local government areas do not hire labor. Members of the family participate in the processing activity. Generally, this group process Soyabean in small quantity. They make an average annual income of N15,000. There are no large-scale processors in Benue

state, as the only one in Gboko local government has long been shut down due to lack of maintenance among other problems.

Various equipments are used during the processing of Soya. These are: grinding mills, frying pans, basins of different sizes, buckets, iron/cloth sieve, spoons/ladles, nylon bags, grinding stone and mortar and pestle. Various products and by-products of soyabean {including Soya milk, Soya powder and flour, Soya cake daddawa (local magi)} are made for consumption and other uses. The Soya bean seeds are purchased from farmers or in the market and then used to make these different products which are resold for money. The processors buy their seeds in bags, basins, mudus and cups depending on the availability of fund and the demand for products. A 50kg bag of improved variety seeds was bought for ₦5,500 between May-August and ₦3,500 when newly harvested from Dec-April. The cost of the local variety ranges between ₦3,000 and ₦4,000 from peak season to off-season. The various products such as the Soya milk, soyabean cake, Soya cheese (“wara”) and Soya powder are highly nutritious and well patronized. The business is very profitable; however, not many people are involved in it so it is non-competitive. The quality of the products depends on the quality of the seeds purchased and its preparation. By-products of Soyabeans milk are used for cooking soup in form of egusi. The product does not last longer than 2 days as they lack special techniques for preservation. If properly dried and kept, Soya powder last for weeks.

The steps in processing soyabean seeds into other products are:

- Washing the seeds
- Soak for a number of days depending on the final product (between 1-2 days)
- Grind the soaked seeds
- Sieve
- Boil the sieved substance
- Cuddle
- Bag the content
- Dehydrate a bit by warming and stirring
- Fry, freeze or smoke for preservation and consumption

The products are packaged in nylon bags, plastic containers, bottles and tins.

Other commodities are processed by these processors and they are cassava, yam, guinea corn, potatoes, maize and melon. They obtain funds from family and friends, relatives, tribal associations/ contributions and local banks. There are no formal or governmental credit institutions or assistance.

Household processors in Benue state process soya beans into soya cake (70% of processors), soya milk (60% of processors) and soya meal (30% of processors). They are mostly small operators processing one 25kg bag of beans a day. Only about 30% process beans all year round.

Artisanal processors in Benue state process soya beans into soya cake (27%), soya milk (7%), soya oil (7%), daddawa (7%) and soya meal. They use simple equipment but 3% use weighing scale and 7% each use crushing machine, steaming machine and oil press. Most of the processors (80%) process soya for the market, and 7% process for sale as well as service to others. About 40% indicated that undertaking processing is more profitable than using a service provider.

Most artisanal processors do not believe that there are quality issues in soya products. Only about 33% of the processors indicated that there are grades in the soya beans produced, about 33% indicated that there are grades in cake, 7% indicated that there are grades in milk and 20% indicated that there are grades in daddawa. Only about 13% of artisanal

processors know that adulterated products are in the market. Adulterated meal and cake are identified through smell and texture.

Only about 7% of the artisanal processors adopt unique practices and 40% are using improved technology which they consider to be cheaper (20%), better (20%) and faster (13%). About 20% of processors indicated preference for the improved technologies. About 33% indicated that training on improving processing technology is available and they have attended such training. They considered the training effective and affordable.

About 60% of artisanal processors indicated that credit facilities are available to processors in form of loans (20%), thrift (40%), lease (7%), banks (13%) and associations (33%). Only about 27% process soya all year round. On the average, soya processing is done for about 13 days in a month and 7 months in a year. About 73% of the processors indicated that labour is available for these activities. More women than men are engaged in processing activities. Transportation of materials is done using taxis (13%), motorcycle (20%), truck (13%) and human portage (13%).

About 53% of artisanal processors have access to information on quality of products. Such information is obtained through their association (40%), farmers (33%), extension workers (40%) and other processors (73%). About 73% of the processors believe that quality of soya products is more important than price to consumers. About 80% strive to improve the quality of their products.

Challenges and Coping strategies

One of the many challenges faced by the women is noise from the grinding machines used. They also lack adequate and hygienic processing materials, have poor access to finance or credit facilities. There is still the use of inadequate technology in the preparation of Soya milk because there is no alternative for better results. There is a long interval between sieving and boiling because of the slow rate of sieving. There is also very poor access to clean water as most of them use non-potable water and therefore processors may find it hard getting clean quality soyabean seeds. Due to unreliable electricity supply, they have to rely on fuel operated millers which raises the cost of business, there is increased cost when buying seeds in large quantity, and are also exposed to the risk of road accidents and robbery. When seeds are not properly dried they are exposed to pest and disease. They cope by employing the use of local materials, sourcing money from friends and relatives, and washing the engines properly to prevent contamination.

Market information regarding price of soyabeans is obtained from friends, middlemen and farmers. They pay tax to government revenue collectors. Peak season for the product is between September and October, which is also called the wet season and during the dry season, December to February, one can find the dry season seed type. Off-season is usually between June and August every year when sale of products is higher. The commodity is usually purchased from producers during peak seasons but when scarce, it is purchased from the retailers. Sometimes farmers intentionally adulterate the quality by mixing it with stones so as to increase the weight and sell it at a higher cost.

5.3 Traders

Traders of soya products in Benue state can be categorised into small, intermediate and large scale traders.

a. Small Scale Traders

Traders in the Soya business are usually grouped in small clusters as observed among the women traders in the Makurdi modern market. Their age range is between 30-40 years. The traders have average annual incomes ranging between ₦30,000-40,000 and have spent 10

years in the community. Many of the traders migrated into the community through inter-communal marriage. The family size ranged between 5 and 9 out of which an average of 3 members participate in Soya trading activities.

Sales is not very lucrative, however, the traders realize a higher income when compared with other crops. Traders in Makurdi main market sell between two and three basins weekly. A basin of the improved variety soyabean costs ₦1800 while the local seeds cost ₦1500 when demand is high. The equipment include mudus (stated by 41% of traders), 50kg and 100kg bags (stated by 21% of traders), basins, cups (peak milk tins) with about 35% of the traders owning weighing scales. The interest in Soya is high compared with other products. The major products sold are the soyabean seeds and Soya powder. Other competing commodities include yam, guinea corn, maize, millet and melon.

About 32% of traders purchase their soya beans directly from farmers, 26% from wholesalers, 15% from the farm gate and 12% from agents. A few of the traders in Makurdi village market help their husbands who are farmers to sell the product. Generally, soyabean is bought in bags and then poured into bowls to be sold in the markets. About 29% of the traders sell beans in local markets, of which 41% sell in the central market, 20% in the feeder market and 9% in the rural markets. A 25kg bag of improved seed is sold for ₦2,750, a 50kg bag for ₦5,500. The Soya mudu and tin cup is sold at ₦70 and ₦15 respectively. The local variety is cheaper than the improved Soya seed. The 25kg and 50kg bag sell for ₦2,600 and ₦5,200. The mudu and tin cup of the local seed sell for ₦60 and ₦10 respectively. About 67% trade in the improved samsoya varieties while about 33% trade in the local varieties. The beans are available in three grades (Grades 1, 2, 3) but most traders patronize the grade 1.

Most traders (74%) indicated that they trade in soya because it is profitable, 65% are in the trade because it is in high demand and 35% are in the business because the beans are available in the state. Most traders believe that entry into soya beans trading is relatively free. About 79% indicated that the poor have access to the market, 53% indicate that there is equal opportunity for all, 94% indicate that there is freedom of choice and 91% feel that there is safety guaranteed. The main constraints stated are cost of materials (62%) security in stalls (59%), getting customers (50%) and association fees (41%).

Soyabean is stored in jute bags, polythene bags, metal or plastic drums and kept in the market stores or houses of the traders. The improved seeds may not require application of chemicals before storage, whereas chemicals are applied to local seeds if storing for more than 2 years. Traders can become members by registering with the Bnarda association and paying monthly dues.

There are two grades of Soya, with regards to quality, sold in the market place. One is the local variety which is smaller in size and easily attacked by insects and pest. The other is the improved variety, also called BNARDA, and is greenish in color and less prone to insect and disease once properly dried. Generally Soyabeans, when stored properly and protected from pest can last between 3 and 5 years without damage. Only about 38% of traders believe that quality is an important issue in soya trade. The traders in a ratio 2:1 however believe that quality is more important than price and only 27% believe they can obtain premium price for good quality. About 79% of the traders believe that consumers are most affected in their choice by quality and only 11% believe they are most affected by price.

Their major customers are individuals who purchase for household consumption. Most traders (88%) sell to household consumers, about 70% target artisanal processors, 50% target retailers, 44% target livestock farmers, 38% target industrial processors and 32% target wholesalers. No governmental organization or company buys from them. Soya is said to be consumed by almost everyone in Benue state. The prices of the commodity vary with the quality of seeds and season, the price falls between July and October each year. Profit

generated from the business is used for their children's education, feeding and investing in other businesses.

SoyaBean traders (76%) overwhelmingly considered transportation costs to be the highest transaction cost in the trade being much higher than handling (32%), storage (32%) and marketing (35%) costs. They believe these costs can be reduced with the intervention of their association which can provide trucks, stabilize transportation, ensuring uniformity in transport fares, negotiating prices on behalf of traders and giving loans to members. About 50% indicated that male labour is available for loading soya beans at about ₦110 per bag. Buses are used by more traders (32%) than any other means. Other means used are human portage (23%), motorcycle (6%), and truck (2%).

There is no formal source of credit available to them and majority shy away from formal sources of loans even if they were made available because of rumor of arrest and prosecution if unable to pay back government loans. About 44% of traders considered that credit is available, 23% believed credit is accessible and only about 3% buy on credit. The main sources of credit to the traders are Adashi (local contributions on a rotational basis), local banks, friends and relatives. There is no form of credits from commercial banks and the government. Only about 13% of the traders sell on credit. Only 41% own the products they trade in and about 40% consider such ownership as important for profitability. They have about half of their working household involved in the business with them. Only 29% have experienced increased trends in their incomes in recent years.

Challenges

The challenges faced by the women traders include excessive charge by the government revenue agents at the market points and tax collectors in the market associations who go to them every now and then. Transportation of goods to selling points also poses a challenge to traders because of the high risk of accidents when in transit and vulnerability to armed robbery both within and outside the market. In winnowing the chaff from the seeds, traders may suffer health/ environmental hazards such as cough and allergy due to air pollution by the chaff of the seeds. In order to cope with some of the challenges, prices are sometimes hiked to increase profit and when they become unnecessarily high, the market association moderates it again. To remain in business, traders borrow money from friends, relatives and associations. Also they learn to scare off robbers on the roads by traveling in groups, study the market seasons and ensure they buy and stock when prices are low. In Wanune, for instance, off-peak period is Jun-Aug and peak season is Dec-Feb, there is slight variation in seasons among the Soya producing areas. They later sell it off when the price has appreciated either in same location or a different one.

Information regarding price controls and other activities of Soyabeans is gotten from other traders, middlemen, and the farmers of soyabeans within their environment.

There is no policy guiding trading of Soyabean in Benue state compared to cassava for which government created awareness such that almost every trader wanted to sell cassava. Traders stated the effect of high government revenue collection is "eating into their little profits". Establishment of Soya bean companies to encourage trading of the product are not considered by the government. The middlemen, rather than government, control the price, and farmers are at the receiving end.

b. Intermediate Traders

Intermediate traders in Benue state trade in meal, cake, livestock feed and soya oil. The units of measure used in trading are mudu (50%), tin (33%), 25kg bags (67%), 50kg bags (67%), 100kg bags (50%) and 25 litre jerry cans. The equipment used are weighing scales (33%) and mudus (33%). About 50% obtain the commodities from their communities. The

sources of cake are farmers (50%) and processors (67%); meal is sourced from wholesalers (17%) and processors (33%); and oil is sourced from wholesalers (16%).

The traders indicated that they trade in feed because it is profitable (67%) and available (33%) while they trade in oil because it is profitable (33%) and in high demand (33%). All the traders believe that entry into soya beans trading is free with equal opportunities for all. The main constraints of trading in cake were identified to be cost of commodity (100%), registration fee (33%), stall (83%) and securing customers (67%). Constraint to meal trade was identified to be cost by 33% of respondents. About 33% indicated that they determine the price of their products.

Intermediate traders sell cake at central market (67%), rural market (50%), feeder market (17%) and site (7%); meal at rural market (50%) and central market (57%) and oil at central market (33%) and rural market (33%). These sales are made to household consumers (67%), artisanal processors (50%) and wholesalers (17%). About 50% indicated that there is a standard product and that the standard is mostly determined by the traders union (67%) and others (67%) but not the government. About 83% believed that quality is more important for cake than price and only 67% indicated that they obtain premium price from good quality of cake. All the traders indicated that marketing higher quality product is important. About 33% indicated that there are adulterated soya products in the market. Adulterated meal is identified by smell (17%) and adulterated cake is identified through texture (33%) and smell (33%).

The major challenges faced by traders are transport costs (100%) and other transaction costs (67%). Other major costs are taxes (33%) and association fees (50%). Only 17% indicated that credit is available but it is not considered accessible. Women are not used as labour. The means of transportation used are human (33%), motorcycle (50%), bus (83%) and truck (67%).

c. Large Scale Traders

Large-scale traders were found in Wanune, Tarka local government area of Benue state. They are also called the Barandas or middlemen. They buy seeds in large quantities of up to 120 bags and store them on annual basis. Only males within the age range of 33 to 40 years practice large scale trading. Their average family size is six. Buying and selling of Soyabean greatly depends on the season. During peak seasons (Dec-Feb), the improved seeds are sold at ₦2,300/ 50kg bag and off seasons (June-Nov), sell for up to ₦5,000. They go as far as Buruku and Yandev to buy the seeds in large quantities from farmers, store them up till off season and transport them to village markets in Makurdi, Otukpo and Gboko. Their major customers are the smaller traders that buy few bags (1-4 bags). Presently a bag sells for ₦4,800. The price is higher for better quality. The equipment used include trucks for transporting their seeds, bags (25kg, 50kg, and 100kg), plastic jericans, and storage rooms in their surroundings.

Challenges

One of the greatest challenges faced by the large scale traders is inadequate storage. During periods of heavy rainfall, water prevents proper drying of the seeds; there is leakage into storage containers which affects the seeds and leads to diseases due to infestations by rodents, pests. They therefore endeavor to seal up the seeds in plastic containers or bags. Traders prefer to store the improved seed since they are less prone to disease infestation and they can stay for two years without treatment. Other challenges experienced are robbery attack on the roads, hired labour to carry commodities in and out the storehouse. The amount paid for hired labour depends on the volume of work but ranges from ₦400-₦600/ head.

Incomes generated by the traders from sale of soyabean are used to provide for their family and educate their children. Health reported issues are linked to fatigue, stress body pains and on rare occasions cough.

Traders hope government can intervene in the Soya value chain by building processing companies thereby avoiding wastes, assist in subsidizing soyabean production inputs (fertilizers, agrochemicals etc.) and reducing high revenues paid by the traders. They also look toward government to create awareness for a ready-market of soyabean seeds as this will bring farmers together and encourage them to produce more

6. PLATEAU STATE

Plateau State, located in the Middle-Belt Zone of Nigeria, lies between latitude 8°24' north and Longitude 8°32' and 10°38' east. It occupies a total land mass of 26,899 Sq. Km. The northern part of the State is mostly rocky and the area contains within its infractions chains of hills and many captivating rock formations. It has high lands rising from 1,200 meters above sea level at the low lands to a peak of 1,829 meters above sea level. Average temperature ranges between a high of 22°C and a low of 18°C. The mean annual rainfall varies from 131.75 cm in the southern part to 146 cm on the Plateau, and highest rainfall is usually recorded in the months of July and August. Soya bean is grown mainly in Bokkos, Mangu, Bassa, Langtang North and Shendam local government areas of the state.

6.1 *Farmers*

Production The data obtained on soya cultivation in Plateau state is presented in appendix 1. Soya bean is a very important crop in Plateau state. Soya farmers in the state on the average devote the second largest area of their farms to soya cultivation (1.9 hectares), the crop with the largest area being maize (3.2 hectares). Sorghum and groundnut are also widely cultivated, with farmers devoting the same area as soya, to the cultivation of these crops (1.9 hectares each). They cultivate 2 varieties of soya: 1 local variety and 1 improved variety obtained from IAR, Samaru (Samsoy 2). The local variety is the most preferred with about 93% of respondents indicating their preference for this variety above the other varieties. The Samsoy 2 was also cultivated with only 2.5% and 5% respectively indicating their preference for this variety. The TGX variety by IITA was not mentioned at all. Many farmers therefore claim that there are two varieties of Soya grown in the area, these being the local (short) and improved (tall) varieties. The short variety is preferred because of its bigger grain size and shorter growth duration. Taste is indicated as the most important reason for preferring the local variety.

The crop is grown mainly because of appreciable income and when intercropped with other crop adds nutrients to the soil. Planting activities take place between June and July during the rainy season. Only one crop is planted and harvested yearly. Land preparation is done manually and by joint age-group/peer effort. There is no mechanisation because land holding is small and fragmented. Weeding is also done manually. The farmers do not apply fertilizer to their soya crop because it is leguminous and would provide acceptable yield without fertiliser application. However the crop benefits from fertilizer applied to the maize intercrop.

The estimated costs of operations as provided are as follows:

Farm Operation/activity	Cost/ha (₦)
Ploughing	5000
Ridging	5000
Planting	1500 - 2000
Weeding	4000 - 5000
Harvesting	2500 - 2800
Threshing	350 - 500/bag

Farmers obtain an average yield of about 305kg per hectare. Most farmers store their produce in farm houses (85%).

Farm Inputs Many of the critical inputs required in Soya beans farming are available in the state and about 63% of the farmers buy the inputs from the open market. Many farmers indicated ready availability of local seeds (81%), improved seeds (50%), fertilizer (44%), and agro chemicals (48%). About 63% of the farmers can afford the fertilizer, 58% can afford the agrochemicals but 48% are using improved seeds. About 65% of the farmers believe they can make more money if they use improved technology in their farming operations and about 60% indicated that such technology is available for their activities. Government extension services are widely known in Plateau as about 71% of the farmers indicated that extension

officers come around and about 69% claimed to have been trained on improved technology. Private extension services are scarcely available. Only about 10% of the farmers indicated that private sector training is available to them. Main sources of information on inputs are fellow farmers (52%), bean buyers (38%) and association (13%). Family labour is important in soya cultivation with an average of between 2 and 5 male and female members of the household participating. Hired labour, mostly in the form of adult male, is reported to be available by 96% of the farmers. Male farmers seem to use improved seeds with improved availability of credit. Fertilizer is also considered affordable by those who find credit available

Quality and standards Only about 44% of farmers indicated that there is a standard product and 58% considered “quality” as a determinant of standard. Most farmers agreed however that there is a premium price for high quality (79%) and that that buyers place more importance on quality (81%) than on price (8%). About 94% of the respondents indicated that producing higher quality products is important to them.

Markets A large proportion of the farmers produce is sold (86%), about 8% is consumed and about 6% is given out as gift. Most farmers (56%) sell their produce directly in the market and only about 17% sell at home, while none indicated sales at the farm-gate. This presumably is to avoid middlemen and ensure better prices. Many farmers sell to retailers (69%), spouses (25%) and wholesalers (23%). The average cost per bag of the local variety is ₦5,680

Transportation and other costs Farmers have access to a wide range of means of transport to move their produce to the market. The most commonly mentioned is the truck (50%), taxi (31%), bus (27%), head portage (13%), and motorcycle (15%). Use of animals and carts were not mentioned at all. Very few farmers own the means of transport they use. About 19% own trucks while 2% each owned buses and motorcycles. As is often the case, it is more expensive to transport a 50kg bag of beans using a bike than by a bus or taxi. The average cost is ₦154 while it is ₦90 for a taxi. The important cost items to farmers were indicated to be transport by 85% of the farmers, taxes by 58%, storage by 56%, and marketing by 50%.

Improving farming investment Entry into Soya beans farming business is relatively easy in Plateau state as observed by 54% of the farmers. However, about 21% indicated that it is difficult to enter the business. Credit availability is relatively poor with only about 29% indicating that they can secure some form of credit. Indeed with respect to accessing credit, only 15% said that it is easy. This means that majority cannot access credit for farming.

Conflicts & problems There is very little conflict in Plateau state with respect to soya farmers. The issues leading to conflicts that were mentioned by farmers were land encroachment (2%) and competition over resources (4%). About 38% and 29% of the farmers identified firewood and water respectively as major problems. About 44% of the farmers indicate that HIV/AIDS is a problem and 73% believe that awareness creation is necessary to deal with it.

Challenges faced by farmers

The greatest challenge mentioned by the farmers is accessibility to fertilizer. This was indicated by 75% of the farmers. The major challenges faced are the action of pest on the young seedlings’ foliage. There is no specific action taken to control the pest because it does not have significant effect on crop yield. Other challenges include:

- Low price and when this occurs they keep their beans in store either at home or in the market place.
- Lack of access to credit. Though the farmers are aware of the federal source of credit i.e. the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB), they reported that they do not have access to such credit neither have they been

visited by extension agents. They do not practice cooperative thrift and credit association which could have been another source of credit for them.

- High cost of transport occasioned by changes in prices of petroleum products.
- Sharp variations in selling prices of co-traders. Since there is no strong association any trader can decide to make a marginal reduction on the unity price of the produce in order to make sales.
- High local levies, as traders pay ₦6000/year for trading space in the market and daily payment of ₦20 for open market access (evidence of payment is by showing receipt)
- Non availability of tractors which is indicated by 21% of the farmers
- Inability to reach buyers which was indicated by 13% of the farmers. There is a lack of customers after the peak period of November to January.

6.2 Processors

Processors of soya beans in Plateau State can be categorized into household, artisanal and industrial processors.

a. Household Processors

Household processors in Plateau state process soya beans into soya cake (33% of processors) and soya milk (40% of processors). They use basic containers such as aluminium pots which are used by all of them, buckets used by 50%, basins used by 93% and plastic and iron drum (7% of the processors). About 79% use sieves but no trays and weighing scales are used. They are mostly small operators processing about 10 mudus of beans a day. About 14% of the processors produce cake all year round and about 29% produce soya milk all year round

The FGD with household processors was held in Mangu. All of the participants were females. They produce and sell these products as a source of income as well as for nutritional variety in meals for the family. On the average the processors have been in the business for up to 10 years with annual income ranging from ₦50,000 to ₦200,000. Their age range is from 18 to 55 years, average age being 35 years. Source of labour input for the household processors is mainly family, particularly the females. All processors reported that their primary occupation is processing.

They convert Soya beans into other edible products for human consumption such as “Awara” and “Daddawa”. Awara is a Soya bean processed delicacy commonly consumed in the soyabean producing state and other parts of the state.

Awara is processed by first soaking the beans in water to remove the coat; it is then taken to the mill where it is ground to a paste. The milled paste is then sieved and the chaff separated from the paste. Water from the sediment is then strained and water from pap (‘ogi’) paste is poured over it making it coagulate. The coagulated substance is then cut into small sizes and cooked with stew. The cooked substance is called ‘Awara’. The coagulated substance could also be fried alone or with egg. When fried with egg it is called ‘awara mai koi’. Each cut of awara is sold at ₦5. There is no price variation between the peak and off-peak season of soya production and trade but the cut sizes are larger when prices of soya beans are low and smaller when prices of soya beans are high.

The household processors could not quantify the weight of the product obtained from a given quantity of soya beans, however, they alluded that 12 Mudus of the beans can yield income between ₦1200 and ₦1500.

There is free entry into and exit from the market. The processors are not organised into an association. The main challenge for them is the tedious nature of the stages involved in

processing and the market levy they pay every market day. There are no high cost items in the business as they sometimes buy soya when prices are low and store against periods of high prices.

b. Artisanal Processors

This group of processors was found in Bukuru close to the industrial mills - Grand Cereals and Oil mills and ECWA mills. The processors are both male and female, age range between 18 and 45 years and an average age of 30 years. Due to the nature of activities involved during processing however males are mostly utilized for labour. They have an average of 3 to 5 years experience in the vocation and educated at least up to secondary school level. Soya beans is sourced from Gboko and Saminaka in Benue and Kaduna States respectively while Soya cake, Soya oil and Soya full fat are obtained from the neighbouring Grand Cereals and Oil mills and other places.

The processors are in the business because of personal interest and profitability. Their major soya products are soya cake, soya full fat and soya oil. These are processed into livestock feeds and bulk oils. The Artisanal processors only produce feeds in mash form because they do not have pellet making machines. The Soya full fat is usually purchased from larger feed mills and utilised in small quantity compared to the cake. The main equipment used in processing include hammer mill, crusher, mixer, scale, drums and bags which are all owned personally by the processors. They are either locally fabricated or imported.

Prices paid fluctuate between ₦45,000 per ton of soya beans and about ₦70,000 per ton of soya full fat. They are generally low between November and January and high between May and July each year. Market price information is usually obtained through the farmers.

Challenges faced by this group of processors are those of quality control especially of the raw material and end product, price variation for end products and stable and affordable power supply. They cope with these issues by taking samples for analysis and reliance on an independent power supply company called NESCO for power supply. They do not patronize their sources of credit due to unfavourable conditions attached.

The market for the product is mainly livestock farmers especially poultry producers who usually bring their mixing ratios to the millers. The different varieties produced are starter mash, growers mash, and finishers. They are not graded since they are specified by the farmers who come with their individual desired formulas.

Storage is not an issue because the products can store for an average of three months and packaged in 25kg and 50 kg bags, the 25kg bags sell between ₦500 and ₦700 per bag. The major market risks are issues of product size and concentration. The processors are not organised into an association and there is no restriction or barrier to entry into the business. Also there is no control or regulation of the prices of services rendered.

c. Industrial processors

The major industrial processors in Plateau state are Grand Cereals and Oil Mills Limited (GCOML) and ECWA mills. GCOML is an integrated foods company producing different brands of Cereals, Vegetable Oil and Animal Feeds. Soya beans and Soya Cake are used as raw materials in vegetable oil and animal feeds. Raw (bulk) and refined oils are produced from the vegetable oil unit while pelletised and mash feeds are produced from the animal feeds unit. The output of the vegetable oils unit also serves as part of the raw materials for the animal feeds unit. While the cake is fed to the animal feed mill as raw material for production, raw Soya oil is sold to paint makers while the refined oil is channeled to households through different distributors, wholesalers and retailers. The refined oil, also known as Grand Pure Soya Oil, has qualities of being cholesterol free, fortified with vitamin A

and approved by Nigeria Heart Foundation as heart friendly oil. Demand for the products is highest during festive seasons and at periods of low demand the company responds by reducing the volume of production.

Major production challenges are breakdown of machinery, electricity, and transportation (poor roads) but they manage to cope through regular maintenance of the machines and by subscribing to power supply provided by NESCO. Products and raw materials are stored in warehouses where the cakes are bagged and oils stored in drums, jerry cans and bottles. The refined oil is packaged in bottles and gallons. They ensure that they maintain good quality products by enforcing in-house quality control measures.

The raw materials of ECWA feeds are Soya meal and full fat soya. They get their beans from suppliers within the state and produce poultry and fish feeds in mash form, and other products like Soya fortified dog and pig feeds. Equipments used in processing are imported and include; roaster, mixer, hammer mill, and crusher.

Major challenge faced is frequent breakdown of equipment due to old age and impurities in the Soya beans supplied. Coping is by regular maintenance and proper inspection of soya beans before purchase and payment.

Market price information is obtained through their marketing officers. Their major customers are distributors and individuals through their sales outlet. The main market risk faced is excess supply in the market but ECWA feeds are high in demand due to their pelletised and odourless nature.

6.3 Traders

Three sets of traders were identified during the survey namely small scale traders, intermediate traders and large scale traders.

a. Small Scale Traders: Soya Beans

The units of measure used in soya beans trade in the state are 100kg bags (stated by 56% of traders) and mudus (stated by 35% of traders). The traders do not have weighing scales, they are only equipped with their bags and mudus. About 80% trade in the improved samsoya varieties while 20% trade in the local varieties. The beans are available in three grades (Grades 1, 2, 3) but most traders patronize the grade 1 which is sold for ₦60 per mudu or ₦5,000 per 100 kg bag. About 60% of traders purchase their soyabeans directly from farmers and 18% each purchase from farm-gates, agents and wholesalers. About 40% of traders sell within the local community. Of those that sell in the markets, 28% sell in the central market, 8% in the rural market, and only 16% in the feeder markets. An average trader sells 2 to 3 bags of Soya beans daily. The main equipment used in trading are bags and measures (mudu and big sized bowls). Most of the traders come from neighbouring villages.

Most traders (68%) indicated that they trade in soya because it is profitable, 32% are in the trade because it is in high demand and only 8% are in the business because the beans are available in the state. Most traders believe that entry into soya beans trading is relatively free with 92% indicating that there is easy access for the poor, 92% indicating that there is equal opportunity, 88% indicating that there is freedom of choice and 76% indicating that safety is guaranteed. The choice of what is sold is basically that of the intending seller. The main constraints in entering the market are security in stalls (28%), getting customers (44%), cost of materials (32%) and association fees (12%).

The FGD with the small scale bean traders was held in Mangu main market in Mangu local government area in Plateau State. The market is operated weekly, trading in various

products and grains. The traders were all females with an age range of 26 to 55 years and an average age of 35 years. They have an average of 20 years experience in marketing and 13 years in the marketing of Soya beans. The majority of the traders are educated at least at the primary school level. There are two main types on sale and they are classified as the clean type and the dirty type, depending on level of impurities. They are sold in Mudus. There is no product differentiation among the traders except in respect to type. The traders reported that the business has contributed to their family welfare and has not generated any form of conflict rather has generated income and is profitable as well as its multiplicity of use and high demand.

Traders store soya in trays (44%), and keep this at home (74%) These seeds are usually held for weeks before disposal. Only 44% of traders believe that quality is an important issue. More traders believe that quality is more important than price and that premium price can be obtained for good quality beans. About 72% of the traders believe that consumers are most affected in their choice by quality and only 16% believe they are most affected by price. Most traders (68%) target wholesalers, about 24% each target retailers and industrial processors, 20% target household consumers, 20% target artisanal processors, and 4% each target exports and livestock farmers.

Market information on Soya Beans prices is obtained by observation of the rate of demand and influx of buyers. Thus variation in market prices is based on speculation and number of buyers that come into the market.

About 36% indicate that male labour is available for loading soya beans at about ₦47 per bag. The means of transport used by traders include bus (8%), human portage (8%), cart (8%), and motorcycle (8%). Bean traders (84%) overwhelmingly considered transportation costs to be the highest transaction cost in soya beans trade being much higher than storage (12%) cost. They believe these costs can be reduced with the intervention of their association which can provide trucks, stabilize transportation, ensure uniformity in transport fares, negotiate prices on behalf of traders and give loans to members.

Only about 4% of traders indicated that credit is available and accessible and no trader buys on credit, but about 12% of the traders sell on credit. Only about 40% of traders own the products they trade in and they consider such ownership as important for profitability. They have about half of their working household involved in the business with them. Most (69%) have experienced increased trends in their incomes in recent years. The estimated reported personal annual income of the traders is however mostly below ₦50,000.00 per annum.

Challenges faced by small scale traders

The major challenge faced by the traders is unavailability of the commodity all year round; however they cope with this challenge by trading in other commodities and farming. Other challenges include lack of accessibility to any form of credit, high cost of transportation and no associations to belong to.

b. Intermediate traders: Soya cake, Meal and Oil

Intermediate traders in Plateau state trade in meal, cake and oil. The units of measure used in trading are 25kg bags (10%) and 50kg bags (100%). The equipment used are weighing scales (90%) and mudus (10%). Only about 40% obtain these commodities from their communities. The sources of cake are farmers (10%) and processors (100%); and meal is sourced from processors (100%).

The traders indicated that they trade in feed because it is profitable (60%), available (20%) and in high demand (60%) while they trade in oil because it is profitable (10%). Most traders (80%) believe that entry into soya trading is free with equal opportunities (90%). The main constraints to trading in cake were identified to be cost of commodity (70%), stall (90%) and

securing customers (60%). Only 10% indicated that they determine the price of their products.

Intermediate traders sell cake (100%); and meal (10%) at feeder market. About 90% indicated that there is a standard product and that the standard is mostly determined by the traders union (10%) and government (10%). About 90% believe that quality is more important than price for cake and 60% indicated that they obtain premium price from good quality cake. About 80% indicated that there are adulterated soya products in the market. Adulterated meal is identified by texture (60%) and smell (70%); and adulterated cake is identified through texture (20%) and smell (20%).

At Katako market in Jos there are a group of traders who deal in livestock feed ingredients including soya cake. The traders operate as an association under the broad association of traders in the market. The major items they trade include soya cake, soya meal, soya full fat, limestone, bone meal, groundnut cake, among others. They reported that there is a high preference by their customers for Soya cake over the groundnut cake. Seven males and 1 female trader participated in the focus group discussion held in this market. All but one of them (a male) is married. They are all educated; six of them up to tertiary level while two had secondary education. Their age range is from 26 to 60 years.

They are in the business of trading processed Soya product because of its profitability and high demand. There is no product differentiation or difference in quality of the commodity traded by this group. Other products are also traded to ensure multi-income stream. Product quality is determined analytically in laboratories. They do not store their soya products for long because the stock is rapidly depleted and for the fear of rancidity.

These traders are faced with similar challenges as the other traders including no access to credit facilities because there are no banks in their community and they are aware that credit is obtainable from banks. Only 40% indicated that credit is available but all respondents indicated that it is not accessible. They are however only interested in interest-free loans with little or no collateral requirements. Other challenges faced include:

- inadequate stock
- lack of modern storage facilities
- high rental cost of stores
- risk of adulteration by processors
- outbreak of epidemic such as bird flu which affected poultry birds demand for feeds
- transport costs (50%)

They cope with these challenges by meeting demands through members, quick disposal of stock to prevent deterioration in quality, and adaptation to the situation as it is.

Market price is determined by speculation and also by a function of the prices at which they purchase. The major customers are poultry and fish farmers who formulate their feeds rather than purchase already finished feeds, there is little demand for pig and dog feed. They depend on family, mostly males, and hired labour for their operations. Women are not employed as labour. Peak period of activity is towards and during the festive seasons when farmers raise and fatten birds for sale. The months of May to September constitutes the off-season period of soya bean trading activities. The major means of transportation is truck (90%).

c. **Large scale traders**

The units of measure used by the large scale traders are mostly the 25kg and 50kg bags but about 9% use mudus. About 36% own weighing scales. Most of them obtain products from outside their communities and sell in feeder markets. They trade in soya because it is

profitable (36%) and is in high demand (27%). All the traders believe that entry into soya beans trade is free, that the poor have access to the market, that there is equal opportunity for all and that there is freedom of choice. The main constraint stated is cost of materials.

About 45% of the traders believe that quality of feed is an important issue and that adulteration of products is an issue of concern. Most of the traders (90%) feel that quality is more important than price but only 36% believe that they can obtain premium price for good quality.

An FGD was held with this category of traders in Jengre market in Bassa local government area of the state. The traders were mainly men while the women trade in other processed products such as soya “awara” and “daddawa”. The traders are all married with an age range of 30 to 60 years, an average age of 45 years and household size ranging between 15 and 20 individuals. About 50 percent of the traders have secondary education while others do not have formal education but have attended Arabic school. Most of the traders have been in the soya beans trading business for between 6 and 15 years.

The market is operated weekly. Entry into the soya bean market is conditioned on the registration of the prospective trader with an annual membership fee of ₦300 per head. There is a trader’s association that monitors sellers of Soya beans in the market. An average of 6 trailer loads of soyabeans is sold every market day during peak trading period. The main reason for trading in soya beans is its profitability.

There are three different grades, characterized according to size of the commodity being sold in the market. They are the Bolobolo (big), Jankai (medium), and Baki (small). The price is dependent on the size of the grain, the larger the grain, the higher the price. Packaging is done using size 27 bags. Each bag contains about 85 mudus. There are middlemen who arbitrate between farmers and non-registered traders since they would not be allowed to sell in the market.

Only about 27% indicated that male labour is available for loading soya beans at about ₦525 per bag. Most of them (83%) consider transportation costs to be the highest transaction cost. About 55% of traders consider that credit is available and accessible through the bank. Only 18% of the traders consider ownership of their products as important for profitability and about 36% have experienced increased trends in their incomes in recent years.

The major challenge of the traders is the unavailability of the product especially when prices are low but they cope by going to other markets to purchase Soya beans. They also lack access to credit but would patronize them if made available since they do not participate in any credit or thrift society.

7. KANO STATE

Kano state is a major producer of soyabeans with a large concentration of farmers in Gwarzo town in Gwarzo local government area. Kano has the largest vegetable oil milling cluster in Nigeria. Soyabean is a crop of interest to stakeholders in Kano State due to its ability to improve soil fertility, which encourages intercropping with other non-leguminous crops such as maize, sorghum etc; and the fact that the leaves are useful in fattening animals. Also, farmers are beginning to note that Soyabean plants serve as herbicides as well as insecticides. Other crops grown in the State in order of importance include maize, sorghum and cotton. The demand for soyabeans is increasing with food industry, oil and feed mills as major users.

7.1 Soyabeans Cultivation (Farmer)

Production The data obtained on soya cultivation in Kano state is presented in appendix 1. Soya farmers in the state devote an average of about 3.5 hectares to soya cultivation, second only to maize (6.2 hectares) and more than sorghum (2.2 hectares), groundnut (2.1 hectares), cowpea (1.2 hectares) and rice (1 hectare). They cultivate 2 varieties of soya: one local and 1 improved variety obtained from IAR, Samaru (Samsoy 2). There is however one dominant variety of soyabeans cultivated in Kano state. More than 92% of the farmers indicated that they prefer the local variety. It is the most preferred variety of Soya beans because of its good taste. The other variety commonly available in the market is produced in Benue State. The varieties of soyabeans are differentiated by their sources (Kano and Benue) and appearance. The Kano variety is more popular due to its perceived quality. The quality is determined by the grain size and cleanliness (level of post harvest impurities). Two varieties of seeds are available (Hybrid-TGX-1448 and Sam-Soy-II). The dominant local variety Sam-Soy II is readily available but the less affordable and improved variety (hybrid-TGS-1448) is more popular. The cultivation process for soyabeans crop vary only with regards to timing and plant population per hectare. There are five key processes: land clearing, harrowing and ridging, planting, herbicide application, weeding, insecticide application, harvesting, and threshing. The schedule for the major activities is indicated in Table 18. The costs of these activities are shown in Table 19. Most farmers (93%) plant soya between May and July and obtain an average yield of 16 bags (50kg) per hectare. Many farmers store their produce on the farm in farm houses.

Table 18: Soyabean Cultivation Schedule in Kano State

Activity	Month Of The Year
Clearing, Harrowing, Superphosphate Application	April
Ridging	Depends On Early Rains
Planting And Herbicide Application	May/June
Fertilizer Application	One Week After Germination
Weeding	Depends On Growth Rate
Insecticide Application	August
Harvest	September/October
Threshing	Late October – Early November

Table 19: Cost of soya bean production operations

Activity	Cost Per Hectare (₦)			
	Human Labour	Animal Traction	Tractor	Agro Chemicals
Land Preparation	2,000	Na	Na	Na
Harrowing	Na	3,500	5,000	Na
Ridging	Na	5,000	Na	Na
Planting	2,400	Na	Na	Na
Weeding	7,000	Na	Na	5,200
Harvesting	10,000	Na	Na	Na
Threshing	10,500	Na	Na	Na

Production method is improved as intercropping between the soyabean and grain crops (e.g. maize) is practiced. This is because of the symbiotic relationship between the two crops.

Farm Inputs The inputs required for the production of soyabeans include labour, improved seed varieties, agro chemicals and fertilizer (for those who intercrop soyabeans with maize, millet and even cotton). Many of these inputs are available in the state but about 95% of the farmers buy the inputs from the open market because they are cheaper and more readily available. Most farmers indicated ready availability for local seeds (83%), improved seeds (83%), fertilizer (76%), and agro chemicals (76%). About 79% of the farmers can afford the fertilizer, 83% can afford the agrochemicals and 81% are using improved seeds. Being a legume crop, soyabeans produces its Nitrogen hence the farmers would require only phosphate fertilizers. Cost of input varies depending on the source and affordability is a major challenge. The cost of fertilizer could be as high as ₦3,000 per bag in the market while government sells at a subsidized rate of ₦1,000 per bag. It is however not readily available at the controlled price. The table below provides detailed input costs:

INPUT DESCRIPTION	AMOUNT (₦)
Fertilizer (Price Range per bag):	1,000 -3,000
Tractor Hire (Price Range per Day)	8,000 – 11,000
Cost of labour per person per day (5hr day)	400
Cost of draft animal per day	3,000
Cost of Seed (100Kg)	5,000

About 83% of the farmers believed they can make more money if they use improved technology in their farming operations and about 83% indicated that such technology is available for their activities. Harvesting is done manually. It involves uprooting, cutting, drying of seeds and leaves, threshing and storing. The threshed grains are usually stored in bags. Government extension services are well developed in the states. About 81% of the farmers indicated that extension officers come around and about 79% claim to have been trained on improved technology. Private extension services are not common. Only about 7% of the farmers indicated that private sector training is available to them. Main sources of information are fellow farmers (81%), bean buyers (21%) and association (2%). Hired labour is reported to be readily available by all the farmers. The data shows that access to credit did not significantly correlate with affordability of inputs for male and female farmers

Quality and standards About 93% of the farmers indicated that there is a standard product but only 33% considered “quality” as a determinant of standard. All the farmers agreed however that there is a premium price for high quality and that buyers place more importance on quality (83%) than on price (52%). About 83% of the respondents indicated that producing higher quality products is important to them.

Markets A large proportion of the farmers' produce is sold (85%) and just about 15% is either consumed or given out. Almost all the farmers (98%) sell their produce in the market and only about 10% sell at the farm gate to community middlemen who sell to large or small traders. None of the farmers sell at home. This presumably is to avoid middlemen and ensure better prices. Many farmers sell to retailers (69%) and wholesalers (48%). The average cost per bag is ₦5,198. The standard measure for the farmers is Mudu (33 Mudus equals 100kg). Farmers claimed that average farm holding is 9 hectares, with an average production of 6.125 Metric Tonnes, while the average income generated from the production is ₦214, 375 per annum.

Transportation and other costs Farmers have access to a wide range of means of transport to move their produce to the market. The commonly mentioned are truck (26%) animal powered transport (26%), motorcycle (24), cart (17), bus (15%), head portage (2%). Very few farmers own the means of transport they use. About 7% own trucks while 21% own animals and 7% each own buses and carts. Animal powered transport is the cheapest means of transportation in Kano at ₦82 to transport a bag of beans over a distance of 4 km. The fee is at an average of ₦224 travelling a distance of about 15 kilometres. The important cost items to farmers were indicated to be transport by 95% of the farmers, taxes by 83%, storage by 50% and marketing by 48%.

Improving farming investment There is no barrier to entry of soya farming business in Kano state as observed by 100% of the farmers. One of the ways by which investment in Soya farming can be made more rewarding is by having access to funds to finance critical stages of the business such as harvesting and delayed sales. Only about 5% of the farmers indicated that credit was available and a larger percentage (95%) said that credit was difficult to access. Farmers have thus largely depended on their own little savings to finance the various phases of Soya farming.

Conflicts & problems: Soya farmers in Kano state experience no conflict. About 19% of the farmers identified fuelwood and 12% identified water as major problems. Conflicts are resolved through intervention of the elders. Although HIV/AIDS is not considered a major problem, about 93% of the farmers indicated that awareness creation is necessary to deal with the HIV/AIDS problem.

Challenges: Insect (cricket) attack is the biggest production challenge facing the farmers, which occurs just after the beans have sprouted. Due to high cost of insecticides, farmers use locally grounded DOROWA to spray the beans after sprouting. Other challenges include:

- Birds and pest attack at germination period. This is coped with by use of mixture of locust bean powder with any insecticide and sprinkled to kill the insects. Farms are also networked with audio cassette threads to make hissing noise which scare the birds
- Lack of access to tractor. This was indicated by 53% of the farmers.
- Lack of effective supervision once a farmer decides to plant soyabeans
- The role of middlemen in determining the market price
- Inability to reach buyers which was indicated by 21% of the farmers.
- Splintering during threshing
- Variation in maturity dates is avoided by planting uniform seed variety
- High cost of labour at harvest is dealt with by delaying threshing until after peak period
- High cost of agro-chemicals and fertilizers, which makes them unaffordable for resource poor farmers
- Low market demand, which discourages more production of soyabeans
- Non-accessibility of credit despite high demand.
- Problem of cattle rearing in the community.

Coping Strategies: Farmers have devised ways of coping with some of the challenges mentioned above and they include:

- Allowing harvested crop to dry well for ease of pod removal, which reduces splintering. Local technicians are rising up to the challenge through fabrication of a local threshing machine.
- Practising contract farming in order to reduce middlemen extortion at the peak season
- Establishing an understanding between soyabean farmers and cattle owners with involvement of community. The understanding includes making announcement at the beginning of planting season to the cattle owners so they can restrain their animals during this period. After harvest, the cattle farmers are invited over to the farms to allow their cattle eat the soyabean leaves and excrete their waste on the farms. The waste serves as manure for the soil.

Areas where government interventions are required include:

- Elimination of middlemen through improved price policy
- Access to labour-substituting technology especially during harvest
- Access to credit
- Capacity building/Training.

7.2 Processors

Three sets of processors were identified. These are household processors, artisanal processors, and industrial processors.

a. Household processors

Household processors in Kano state process soya beans into soya cake (44% of processors), soya meal (33%), soya milk (11% of processors) animal feed (11% of processors) and paste (11% of processors). They use all the basic containers but also use weighing machines (22%), crushing machines (11%), sieves (11%) and steaming machines (11%). About 44% of the processors process beans into cake all year round but only 11% produce milk all year round. Household processing is dominated by females (mostly house wives) that produce mainly two type of products - soymilk (both liquid and powdered) and local cake (Awara). Their ages ranges from 22 - 45 years with an average age of 32 years. Average annual Income is ₦68, 132 and ranges from as low as ₦25,000 to ₦150,000 per annum. There is hardly use of non family labour. Grinding of the soyabean is done using local grinders that are also used for grinding pepper and other crop produce. Other local equipment used include pots, grills, basket and bowl. The Soyabean is sourced from the local market commodity traders at a price range of ₦130—~~₦150~~ per Mudu. The steps in processing Awara, which is the dominant consumer product, are soaking, grinding, getting the paste, cutting and frying. Other products include the milk and dry baby food, which is locally produced by grinding and sieving. Filtration and removal of the husk for milk production is the most difficult aspect of the processing.

Many household processors are involved in the activity to supplement their income and help their households. Increase in demand for Awara and Soymilk as a very good protein substitute for local consumption was also mentioned. The Cake (Awara) is sold as pieces stored in transparent white bucket for ease of identification at the price of ₦5 per piece while the liquid milk is sold in 200 ml bottle at ₦10 each. Products are sold through hawking or bulk supplies for secondary retails by other households. The cake and the milk must be sold the same day unless they are stored in a freezer, which many can not afford.

Qualities are largely determined by the quality of the seeds used in processing. However the smaller mature seeds do give high quality products. The products (cake and milk) can be produced in all seasons. The household processors do not have access to credit from

financial institutions as only 11% indicated availability of credit from this source . However, support from family members and other household Soyabean suppliers who may give one or two Mudus per day as credit are always available.

Soyabeans processing has had multiplier effect on their family. Many of the household processors indicated that their families benefit through increase in income and improved diet as some indicated that soy cake is a major source of protein consumed daily. Environmental impact is very minimal with regards to their processing activities.

Challenges: The biggest challenges household processors face are as follows:

- Lack of power supply, which increases the waiting time at the grinding points
- Lack of storage facilities for fresh unsold inventories.
- As small as their capital requirements are, it is difficult for them to get funding.
- Contamination of soyabeans during grinding and pasting is limited by ensuring that the grinding machine is washed after grinding other products
- Spoilage of awara and milk is limited by production on demand and sometime they borrow neighbor's fridge for safe keeping.

List of training received *include:*,
grinding engine, Ibadan training
New processor techniques
(machine).Ibadan training was
reported in Kano and Kaduna.

b. Artisanal Processors

The artisanal processors in the state process soyabeans for refined oil with soy cake as by products used for animal feed. About 40% of them operate as service providers for small and medium entrepreneurs and some processors sell refined oil to retailers in drums (200 litres) and jerrycans (50 litres). About 73% indicated that undertaking processing is more profitable than using a service provider. Equipment used is dependent upon scale of operation and level of processing. Major equipment used in processing are crushers (55%), steamers (14%), boilers, refining equipment, oil presses (32%) and storage tanks. Except for few that could be fabricated locally, most of the equipment are imported mainly from China and India. Processors in the State are into soyabeans processing because it is considered an alternative to other cash crops such as groundnut, cotton seed and kapok which are not available all year round. There is also a growing demand for soyabeans by-products (cakes) for animal feed. Another reason adduced for soyabeans processing is its ease of storage hence less risk of spoilage.

Quality of processed product (oil and cake) is determined by the quality of the seeds (soyabeans) used in processing and the source of the seeds influences quality. The seeds that originate from North West zone of the country seem better. Most of them do not believe that there are quality issues in soya products. Only about 27% of the processors indicated that there are grades in the soya beans produced, about 36% indicated that there are grades in the cake, about 18% indicated that there are grades in the meal and 13% indicated that there are grades in the milk. Only about 5% of artisanal processors believe that adulterated products are in the market. The processors hardly hold any inventory because they hardly meet demand since the scale of operation is low.

Soyabeans attract more processing fees than groundnut due to activities involved in its processing. The cake is packaged in 50Kg but is sold in tonnage measure while the oil is sold in drums (200 liters). Current price for soy cake in the State ranges from ₦48,000 – ₦50,000 per metric tonne, while the oil is sold at ₦32,000 per 200 liter drum. Peak processing season is between October and January while off season is during the month of June, July and August. During off season period, processors purchase soy cake from household processors and use as raw material for refined oil production. This soy cake supply is from States across the north-west. Major customers are feed mills and other primary processors especially for the oil.

Only about 23% of the processors adopt unique practices and 46% are using improved technology which they consider to be cheaper, faster and better. About 32% of processors indicate preference for the improved technologies. About 59% indicate that training on improving processing technology is available and they have attended such training. The training was on electricity/power generation and water extraction systems. They considered the training effective and affordable.

Only about 5% of the processors indicated that credit facilities are available to processors in form of loan from banks (5%). Only about 32% process soya all year round. On the average, soya processing is done for about 17 days in a month and 7 months in a year. About 91% of the processors indicated that labour is available for these activities. More men than women are utilised for processing activities. Transportation of materials is done using taxis (5%), truck (27%) and cart (5%).

About 64% of processors have access to information on quality of products. Such information is obtained through other processors (73%) and input suppliers (9%). About 73% of the processors believe that quality of soya products is more important than price to consumers while about 9% believe that cost is more important. About 73% strive to improve the quality of their products. Market information is obtained from the local processors but is influenced by available substitute such as groundnut, cottonseed cakes and oils. Price fluctuation is the highest risks. In all cases capital has been invested in the machinery and operational cost may be high. One could easily operate at a loss.

Challenges: Lack of regular energy supply (electricity) remains the biggest challenge to processors, which have negative impact in ability to meet growing market demand for their services. Some service providers closed shop as a result while other use generators to remain in business. Limited number of equipment due to limited capital available was also mentioned as a challenge inhibiting the growth of the processing industry. Seeking for contract processing has assisted in solving some of the challenges of Soyabeans processing. The customers are made to pay in advance in order to assist in capital requirement.

c. Industrial Processors

Industrial Soyabean processing sector is dominated by males. The staff strength ranges from 20 to 100 depending on level of operation and are mostly non family members. It was difficult to establish the level of annual turnover. Equipment used at this level of operation includes crushers, steamers, boilers, refining equipment and storage tanks. Except for few that could be fabricated locally, they are imported mainly from China and India.

There are basically two types of products produced by industrial processors -cake and oil regardless of the commodity used, which are mainly groundnuts, cotton seed, sesame seeds and Soyabeans in order of priority. These products are sourced from the local market through traders at the price ranges from ₦4,900 –~~₦5,200~~ per 100kg bag. The steps in processing of the commodity involve sieving, crushing, pressing, extraction and physical and/or chemical refining depending on availability of equipment. They use relatively complex equipment such as toasting machine (67%), crushing machine (100%), steaming machine (67%) and oil press (67%) which cost about ₦1.2 million, ₦15.5 million, ₦2.5 million and ₦6.15 million respectively. Other equipment used include cleaner, extraction plant, mixer, incline anger, oven, palettin and refining equipment.

The use of hexane is common for those who combine chemical refining and physical refining. Groundnut is considered the most preferred commodity for processing. However, interest in Soyabeans is based on its growing demand and good alternative to groundnut, which is not available all year round. Additional advantage that Soyabean has is its ease of

storage hence less risk of spoilage. Other commodities processed include cotton seed and sesame.

About 67% of the processors indicated that there are grades in the oil produced. About 33% of the processors have adopted improved practices such as quality control, soaking in water and testing of quality. About 67% of processors have adopted improved technologies for processing soya because they are cheaper to operate (33%), offer increased rate of operations (33%) and improved product quality (67%). All the processors indicate willingness to procure improved technologies. About 67% of the processors process soya for the market and 33% process as service to others. Their customers are livestock feed manufacturers and other customers.

Credit: About 33% of the processors indicated that credit facilities are available to processors in form of loan from banks at interest rate of about 8%. They, however, do not find it easy to obtain credit. Effort to obtain loan from commercial banks seemed difficult and accessing the SMEIS funds proved fruitless. Trade associations play a major role in providing credit,

Costs: All the processors indicated that labour is readily available for their activities in the peak and off-peak seasons. Energy is identified as the biggest cost item by all. All processors considered poor market as their major challenge while 33% considered power failure as a major challenge. Actions taken to address areas of high cost include intervention by union, purchasing own vehicle for transportation, stock-piling, bulk purchasing and lobbying for government support.

Quality issues: Only about 33% of industrial processors have knowledge of the availability of adulterated products in the market. Identification of adulterated meal and cake is by texture while oil is by smell. All processors have access to information on quality of products through other processors. All the processors believe that quality of soya products is more important than price to consumers. About 33% indicate that training on soya product quality is available and 33% have attended such training. All processors are striving to improve the quality of their products and this is being achieved through analysis (33%) and quality control processes (67%).

Quality of produce is largely determined by the quality of the Soyabeans used in processing. The variety of Soyabeans used is determined by the production source. The seeds (Soyabeans) that originate from North West zone of the country seem better. The industrial processors maintain constant relationship with suppliers in order to ensure the supply of high grade seeds. The processors hardly hold any inventory because they hardly meet demands since the scale of operation is low. Peak processing season is between October and January while off season is during the months of June, July and August.

Market situation are similar to those of artisanal processors. The soy cake is packaged in 50Kg but is sold in tonnage while oil is sold in 200 litre drums. Current price per metric tonne of cake ranges from ₦48,000 – ₦50,000 and for oil, ₦32,000 per 200 litre drum. Major customers are feed mills and other primary processors especially for the oil. Price fluctuation is the highest risks due to capital invested in the machinery and high operational cost. The industrial processors could use economics of scales to lower prices.

Challenges and coping strategies: Two major challenges to industrial processors mentioned were lack of credit facility and supply of energy (electricity) which has negative impact on their operations. However, they seem to rely on trade associations for loans and contract processing as coping strategies.

Environmental Issues: Where they form clusters, key environmental issues that are of great concern to the processors are lack of key economic infrastructure such as roads,

electricity and health infrastructure such as sanitation facilities (toilets), drainage which are often blocked leading to flooding during rainy season. In addition, because of their scale of operation and the degree of refining, production of sludge is common but they are beginning to realize that local people demand for it and use it for production of local soap (SODA).

Government Policy and Action: Depending on the degree of operation, lack of working capital dominated the processors' concerns. They want government to assist in capacity building for their members. Specifically, they believe government could assist by establishing some kind of rebate system for fuels since electricity is not available. Finally, there is consistent gap between what government says and what it does and its inability to have policy coherence that cuts across similar industries. For instance, recent bird flu intervention, which affected poultry farmers, is a case in point. The compensation that poultry farmers got did not take into consideration the links to feed millers and industrial processors. In many cases, there are supplier credit relationships between these synergistic industries. When the poultry farmers were not adequately compensated, they were unable to pay feed millers and the feed millers were unable to pay the processors. Neither the processors nor the feed millers were contacted to determine their losses.

7.3 Trading

Three sets of traders were identified in Kano. These are small-scale, intermediate and large-scale traders. Many traders indicated that they ventured into Soya beans trading to substitute or complement the cash crops they currently trade in. Quantities traded per week depend on availability of capital and demand in the market. The quantity traded ranges from 10 tons per week to 100 tonnes per week. Best quality grains in terms of size and low level of impurities come from Kano, Kaduna and Katsina.

a. Small-Scale Traders

For small-scale traders in Soyabeans market, their interest in the trade is to substitute or complement the cash crops they trade in. Other products being traded are maize, beans, millet and groundnuts. Other reasons offered are its growing market demand; its being an additional source of income, its profitability and its ease of storage hence less risk of spoilage. Most traders (60%) indicated that they trade in soya because it is profitable, 50% are in the trade because it is in high demand and only 35% are in the business because the beans are available in the state. Most traders believe that entry into soya beans trading is free with equal opportunities and safety guarantees. The main constraints to market entry are getting customers (40%) and cost of materials (40%).

The units of measure used in trading in soya beans in the state are 100kg bags (stated by 80% of traders) and mudus (stated by 10% of traders) with about 30% owning weighing scales. All traders trade in the improved samsoya varieties. The beans are available in two grades (Grades 1, 2) but most traders patronize the grade 1 which is sold for ₦150 per mudu. About 55% of traders purchase beans from farmers, 30% from agents and only about 10% from wholesalers. About 60% sell in the central market and only 5% in the feeder markets.

Traders store soya in trays (30%), silos (5%), drums (15%) and bags (4%) and keep this at home (35%), in their shops (20%) and some others store it in the market and cover with tarpaulin. These beans are usually held for only some days before sale. About 55% of traders believe that quality is an important issue, 85% indicated that it is more important than price and 70% obtains premium price from good quality. About 85% of the traders believe that consumers are most affected in their choice by quality and only 5% believe they are most affected by price. About 55% of traders target retailers, 40% target household consumers, 30% each target artisanal processors, industrial processors and livestock farmers, 25% target wholesalers and 20% target exporters.

The current off peak market price is ₦5,100 per 100Kg bag and ₦140 per Mudu. But the price fluctuates between ₦3,500 - ₦5,100 per 100 Kg and ₦80 - ₦140 per Mudu between the peak and off season as a result of demand. The average number of 100Kg bags traded per week is 60, which are usually sold with Mudus at the price of ₦80 – 140 per Mudu as this is the generally accepted measuring scale. The average income generated from the trade volume is ₦16 million per annum. The equipment being used at the level of small-scale trading is scale to confirm the weight per bag, the number of Mudus per bag ranges from 33 – 40.

Human labour is used for loading and off loading the grains. About 90% indicate that male labour is available for loading soya beans at about ₦35 per bag. Most traders (90%) use buses to transport beans and only 10% use human portage. Bean traders overwhelmingly consider transportation costs to be the highest transaction cost in trading in soya beans being much higher than handling (10%), storage (15%) and marketing (10%) costs. Only about 15% of traders consider that credit is available, only 30% indicated that it is accessible and only about 10% buy on credit. Those who have obtained credit got such from their association (30%) and friends (20%). About 60% of the traders however sell on credit to mostly processors.

Market information is obtained from Trade Associations from neighboring states or community where the beans are grown. The highest risk occurs during rainy season because the beans are likely to get wet during storage. Risks are managed through the use of good storage infrastructure and use of good covers when transporting to customers. Major customers include local artisanal and local processors.

Most traders (85%) own the product they trade in and they consider such ownership as important for profitability. Only about 30% has experienced increased trends in their incomes in recent years. Environmental issues that are of great concern to the traders are lack of key economic infrastructure such as roads, electricity and health infrastructure such as sanitation facilities (toilets) and drainages, which are often blocked leading to flooding during rainy season.

Challenges and coping strategies: The key challenge for the small trader is that of scale and lack of working capital. They cope through trade credits often obtained from large scale traders, inventory credit, family credit and group funding. Other challenges include inability to determine level of impurities in each bag bought which is mitigated by checking the content of each bag thoroughly before retailing.

Government policy: Lack of infrastructure in the market is a major gap the traders highlighted as government's responsibility. Of interest though is the opinion of some traders that taxes and user fees are low. They would have no problem with increase in tax and user fees if only the money could be used to improve economic and health infrastructures in their community and market.

b. Intermediate traders

Intermediate traders in Kano state trade in meal, cake, livestock feed and soya oil. The units of measure used in trading are 25kg bags (10%), 50kg bags (60%), 100kg bags (60%) and 25 litre jerry cans. The equipment used are weighing scales (10%) and mudus (70%). Only about 20% obtain these commodities from their communities. Traders usually source their soy cake and soy meal from processors as indicated by 50% and 30% of the respondents, respectively.

The traders indicated that they trade in feed mainly because it is profitable (70%) while they trade in oil because it is both profitable (20%) and in high demand (10%). About 50% of the

traders believe that entry into soya trading is free with equal opportunities (60%). The main constraints to trading in cake were identified to be cost of commodity (40%) and securing customers (7%). Constraint to meal trade was identified to be cost by 10%. About 30% indicated that they determine the price of their products.

Intermediate traders sell cake at rural market (20%), central market (10%), feeder market (10%) and site (10%); and sell meal at feeder market and central market (10%). About 20% believe that quality is more important than price for cake but about 60% indicated that they obtain premium price from good quality of cake and 60% are marketing higher quality cake. About 80% indicated that there are adulterated soya products in the market and adulterated meal is identified by texture (80%).

The major challenges faced by traders are transport costs (50%) and other transaction costs (50%). The other major cost is tax (10%). Only 10% indicated that credit is available but not accessible. Labour is exclusively by men (80%). The means of transportation used are motorcycle (10%), bus (10%) and truck (50%).

c. Large-Scale Traders

Reasons for trading in Soyabeans include its growing market demand, an additional source of income, its profitability and its ease of storage hence less risk of spoilage. The traders indicated that they trade in soya because it is profitable. All the traders believe that entry into soya beans trade is free, that the poor have access to the market, that there is equal opportunity for all and that there is freedom of choice. Soyabeans can last up to three years or more without adding any preservative because it is a hard nut for insects.

The units of measure used by the large scale traders are 25kg bags (10%) and 25-litres (10%) and 50-litre (50%) jerry cans. They do not own weighing scales but rely on the mudus. They all obtain products from outside their communities and sell them in feeder markets. Peak season is between October and January while off season is during the months of June, July and August. The average number of 100Kg bags traded per week is 140 while the average income generated from the trade volume is N36 million per annum. Soyabeans trade has had multiplier effect on the family of the stakeholders. Many of the traders indicated that their wives do process the beans to consumer products such as local cake (Awara), milk and baby food substitute. It is important to note that none of the traders lives in the community possibly because of proximity to city centre which allows them to commute.

Variety and quality of Soyabeans: Quality and grade are largely determined by colour, size, the location of the beans and the degree of maturity during harvest. There are mainly two grades. The first grade is yellowish, large in size and is usually grown in the northern part of the Country (Kano –Kaduna state axis). The second grade is usually mixed, of yellowish and greenish beans, smaller in size, harvested earlier and usually grown in Southern part of Kaduna, Benue, and Adamawa states. As long as traders can agree on the right prices, it is easy to obtain high grades beans as there is market for it. Storage infrastructure influence maintenance of good grades and the market prices determine how long they hold products, which is usually not more than two months. None of the traders believes that quality of seed is an important issue but 50% indicated that adulteration of products is an issue of concern. Most of the traders (60%) feel that quality is more important than price but only 20% believe that they can obtain premium price for good quality.

Market – prices and routes: The current market price is ₦5,100 per 100Kg bag; this price is to be interpreted with caution since traders have indicated that they do give discounts of 2% - 5% depending on volume and value of orders. But the price fluctuates between N3,500 -N5,100 per 100 Kg depending on season and demand. Market information is obtained from Trade Associations in neighboring states where the beans are grown.

Prices of Soyabean at Dawanau Market				
Parameter	Peak Season		Off Season	
	Per Mudu (₦)	Per 100kg Bag (₦)	Per Mudu (₦)	Per 100kg Bag (₦)
Buying Price	120	4,000	135	5,000
Selling Price	135	4,400	150	5,500

The highest risk occurs during rainy season because the beans are likely to get wet during storage or when the product is being transported to the buyers. Risks are managed through the use of good storage infrastructure and use of good covers when transporting to customers. Major customers include oil milling companies such as Sun seed in Zaria and animal feed mills such as Zartech in Ibadan but they sell to buyers in Kano as well.

Only 30% indicated that male labour is available for loading soya beans at about ₦500 per bag. None of the traders considered that credit is available. All the traders considered ownership of their products as important for profitability but none indicated increased trends in their incomes in recent years.

8. GENERAL CONCLUSIONS

Soya beans is a major crop in all the 4 states where the survey was carried out. While there are many similar characteristics across the 4 states for the different categories of stakeholders, there are lots of differences.

These differences include:

Characteristic	Kaduna	Benue	Plateau	Kano
Varieties cultivated	Four varieties cultivated (TGX 1448-2E, TGX 1485, Samsoy 2 & local variety)	Four varieties cultivated (TGX 1448-2E, TGX 536-2E, Samsoy 2 & local variety)	Two varieties cultivated (Samsoy 2 and local variety)	Two varieties cultivated (Samsoy 2 and local variety)
Inputs	Ready availability of inputs in open market	Ready availability of inputs in open market	Ready availability of inputs in open market	Ready availability of inputs in open market
Extension Agents (ADP)	Limited extension services	Limited presence of extension agents	Presence of extension agents	High presence of extension agents (About 81% of the farmers indicated that extension officers come around)
Credit	About 67% of industrial processors indicated that credit facilities are available	credit facilities are available to processors in form of loans, thrift, lease, banks and associations	Credit facilities are not readily available to processors	Credit facilities are not readily available to processors
	Small-scale traders have no access to credit	No formal source of credit available to small-scale traders	Small-scale traders have no access to credit	Small-scale traders have access to trade credits often obtained from large scale traders, inventory & family credit and group funding
Processors	All categories of processors available	household and artisanal processors but no industrial processors	All categories of processors available	All categories of processors available
	Both men and women are involved in processing	Women dominate processing activities	Both men and women are involved in processing	Both men and women are involved in processing
	Artisanal processors are into milk, cake/awara, daddawa, cheese and soya soup	Artisanal processors are into milk, cheese, powder and flour, cake and daddawa (local magi)	Artisanal processors are into soya cake, soya full fat and soya oil, which are further processed into livestock feeds and bulk oils	Artisanal processors are into refined oil with soy cake as by products used for animal feed
High Cost Areas - Traders	They consider transportation costs to be the	They consider transportation costs to be the	High transportation cost is one of the major challenges	High transportation cost is one of the major challenges

Characteristic	Kaduna	Benue	Plateau	Kano
	highest transaction cost	highest transaction cost		
Intermediate products traded	Trade in meal, cake, livestock feed and soya oil	Trade in meal, cake, livestock feed and soya oil	Trade in soya cake, meal, soya full fat, limestone, bone meal, groundnut cake and soya oil	Trade in soya cake, meal, livestock feed and soya oil
Large markets price determination	Prices are fixed by the District Head for each market day on the advice of Sarkin Kasuwa	Information regarding price controls and other activities is gotten from other traders, middlemen and farmers	Information regarding price controls and other activities is gotten from other traders, middlemen and farmers	Market information obtained from Trade Associations in neighboring states where the beans are grown

APPENDIX 1: Analysed Data for Farmers

Table 1.1: Area cultivated and preference for varieties

	KADUNA	BENUE	PLATEAU	KANO
Ranking of crops that are most important by State				
Do you grow Soya?				
Yes	100	100	100	100
No	0	0	0	0
Do you grow Sorghum?				
Yes	3%	24%	55%	38%
No	97%	76%	45%	63%
Do you grow maize?				
Yes	68%	25%	75%	85%
No	32%	75%	25%	15%
Do you grow Groundnut?				
Yes	24%	49%	48%	23%
No	76%	51%	52%	78%
		2		
Area committed to Soya by household				
0.1 - 2.9	53%	90%	84%	53%
3 - 5.9	25%	9%	11%	33%
6 - 10	13%	0%	5%	13%
> 10	9%	1%	0%	3%
Area committed to Sorghum by household				
0.1 - 2.9	3%	22%	43%	28%
3 - 5.9	0%	1%	9%	8%
6 - 10	0%	0%	2%	3%
> 10	0%	0%	0%	0%
Area committed to Maize by household				
0.1 - 2.9	34%	22%	39%	53%
3 - 5.9	19%	1%	20%	23%
6 - 10	7%	0%	16%	3%
> 10	7%	1%	0%	8%
Area committed to Groundnut by household				
0.1 - 2.9	22%	49%	39%	15%
3 - 5.9	1%	0%	9%	5%
6 - 10	0%	0%	0%	0%
> 10	0%	0%	0%	0%
Preference for Varieties of Soya				
Local variety 1	22	43	18	93
Local Variety 2	2	0	0	0
TGX 1448-2E	7	5	3	0
TGX 536-2E	15	2	5	0
Samsoya 1	11	38	5	3
Samsoya 2	35	4	63	5
Preference - Taste				

	KADUNA	BENUE	PLATEAU	KANO
Local variety 1	6	21	11	91
Local Variety 2	6	0	0	0
TGX 1448-2E	6	0	0	0
TGX 536-2E	6	0	0	0
SAMSOYA 1	12	71	11	9
SAMSOYA 2	53	0	67	0
Preference- High Demand				
Local variety 1	16	23	19	100
Local Variety 2	0	0	0	0
TGX 1448-2E	16	3	0	0
TGX 536-2E	6	0	0	0
SAMSOYA 1	8	47	10	0
SAMSOYA 2	36	3	57	0
Area committed to improved variety				
<1.6	44.4	64.3	100	18.5
1.6-3.0	22.2	26.2	-	50
3.1-6.0	22.2	7.1	-	28.8
6.1-10.0	-	2.4	-	-
>10.0	-	-	-	2.7
Area committed to local variety				
<1.6	38.1	50	77.8	100
1.6-3.0	38.1	50	22.2	-
3.1-6.0	-	-	-	-
6.1-10.0	23.8	-	-	-
>10.0	-	-	-	-
Yield per hectares (Tonnes)	0.5	1.4	0.6	1.6
Where commodity is sold				
Farm gate	7	14	0	0
Market	88	86	56	98
At Home	5	6	17	10
To whom it is sold				
Retailers	28	31	69	69
Wholesalers	57	40	23	48
Farmers' wife	1	3	25	0
Middlemen	0	27	0	0
Where can you sell				
Know places where you can sell	40	37	2	38
Ease of entering business				
Very Easy	44	9	17	26
Easy/What do	40	47	54	74
Difficult	9	36	21	0
Credit Availability				
Credit available?	21	49	29	5
Credit Accessibility				
Very easy	1	4	2	0
Easy	9	29	15	5
Difficult	40	16	28	95
Sharing of harvest (25Kg Bags Sold)				
1-3 bags	100	33	100	.
3.1-6 bags		27		
6.1-10bags		33		.

	KADUNA	BENUE	PLATEAU	KANO
>10 bags		7		
Sharing of harvest (25Kg Bags consumed)				
1-3 bags	75	100	.	.
3.1-6 bags
6.1-10bags
>10bags	25	.	100	.
Sharing of harvest (25Kg Bags given out)				
1-3 bags	100	100	100	75
3.1-6 bags	.			
6.1-10bags	.			
>10bags	.			25
Sharing of harvest (50Kg Bags Sold)				
1-3 bags	.	20		50
3.1-6 bags	30	5		.
6.1-10bags	30	35		.
>10 bags	40	40		50
Sharing of harvest (50Kg Bags consumed)				
1-3 bags	67	80	100	100
3.1-6 bags			.	.
6.1-10bags			.	.
>10bags	33	20	100	.
Sharing of harvest (50Kg Bags given out)				
1-3 bags	66.7	100	34	100
3.1-6 bags		.	50	
6.1-10bags		.	16	
>10bags	33.3	.	.	
Sharing of harvest (100Kg Bags Sold)				
1-3 bags	2	0		0
3.1-6 bags	2	17	9	3
6.1-10bags	0	27	9	0
>10bags	96	56	82	99
Sharing of harvest (100Kg Bags consumed)				
1-3bags	67	100	1000	100
3.1-6 bags	.			
6.1 -10 bags	.			
>10bags	33			
Sharing of harvest (100Kg Bags given out)				
1-3bags	38	80	10	53
3.1.-6bags	14	0	0	23
6.1-10bags	43	0	0	11
>10bags	5	20	90	13

	KADUNA	BENUE	PLATEAU	KANO
Area of High Cost[1]				
Planting	5	37	38	2
Harvesting	41	46	44	71
Transportation	21	24	0	2
Types of transportation				
Availability of human portage	13	37	13	2
Human portage done by farmers	3	20	2	0
Availability of animals	17	0	0	26
Animals owned by farmers	4	0	0	21
Availability of cart	15	4	0	17
Cart owned by farmers	4	0	0	7
Availability of Bike	15	21	15	24
Bike owned by farmers	0	1	2	10
Availability of taxi	1	23	31	0
Taxi owned by farmers	--	--	--	--
Availability of buses	15	46	27	17
Buses owned by farmers	0	1	2	2
Availability of trucks	68	70	50	26
Trucks owned by farmers	8	6	19	7

[1] Percentages reflect multiple response and may not add up to 100%

Table 1.2: Transportation and Input Issues

	KADUNA	BENUE	PLATEAU	KANO
Transport Costs				
Animals Mean Distance	6	-	-	4
Cost (₦)	70	-	-	82
Cart Mean Distance	3	-	-	-
Costs (₦)	125	-	-	-
Bike Mean Distance	52	30	12	3
Costs (₦)	167	148	154	788
Taxis Mean Distance	10	26	19	-
Cost	128	135	91	0
Buses Mean Distance	15	34	47	19
Cost	224	128	184	96
Truck Mean Distances	18	25	9	8
Cost				
Challenges				
Fertilizers	55	47	75	2
Seeds	3	11	10	0
Tractor	13	36	21	57
Reaching buyers	15	11	13	21
Agrochemicals	-	-	-	-
Middle men	-	-	-	-
Transportation	-	-	-	-
Pests	0	0	2	0
Fertilizer available	61	59	44	76
NPK Fertilizer	65	3	85	70
Sulphate	1	89	0	14
Cost of NPK (₦)	2,658	3,330	3,208	2,918
Cost of Sulphate (₦)	1,800	2,397	-	2,650
Can afford fertilizer	55	44	63	79
Local seeds available	68	47	81	83

	KADUNA	BENUE	PLATEAU	KANO
Improved seeds available	55	86	50	83
Are you using improved seeds?	43	74	48	81
Agrochemicals available?	59	54	48	79
Can afford agrochemicals?	56	21	58	83
Buy inputs from open market	64	36	63	95
Improved technology available	24	13	60	83
Make money from improved tech?	33	37	65	83
Extension officers come around?	31	39	71	81
Trained in improved technology?	23	19	69	79
Any private sector training?	16	4	10	7
1 st training effective?	16	3	50	64
2 nd Training effective?	1	0	17	0
Farm labour available?	92	80	96	100
Male Adult labour available?	76	71	96	98
Cost of male labour (N)	324	1,656	457	383
Male child labour available	25	34	75	83
Cost of male child labour (N)	228	200	364	182
Female Adult labour available	13	56	42	76
Female child labour available	5	26	25	19
Cost of child male labour (N)	200	231	214	171
Reason: Cheaper	4	3	2	12
Readily accessible	8	0	0	19
Planting season				
April to June	4	1	2	7
May to July	35	7	71	29
June to July	41	56	25	64
July to August	11	24	0	0
Storage				
Store by sun drying	47	24	44	83
Store in bags	13	34	31	14
Where Stored				
On farm	32	17	4	50
In farm houses	51	47	85	36
Length of holding (mths)	3.4 (1-12mths)	5.4 (1-11mths)	4.1(2-9mths)	4.7 (1-8mths)
Transaction cost				
Transport	1	1	1	1

Table 1.3: Transaction, Varietal and Marketing Issues

	KADUNA	BENUE	PLATEAU	KANO
Transaction Costs				
<i>Transport</i>	80	81	85	95
Cost (N)	938	232	1,619	70
<i>Storage</i>	33	27	56	50
Costs (N)	527	102	204	29
<i>Marketing</i>	28	49	50	48
Costs (N)	171	75	103	108
Other Costs	10	26	19	-
Taxes	41	70	58	83
Cost (N)	147	90	85	29

	KADUNA	BENUE	PLATEAU	KANO
Association fee	7	54	42	0
Cost (₦)	244	43	46	135
Other Costs	3	13	29	33
Cost (₦)	3,020	58	49	147
Bribe	0	16	0	0
Cost of Bribe (₦)	-	34	-	-
Is there a standard product?	39	20	44	93
Determined by quality	23	17	58	33
Sources of Information				
Fellow farmers	44	31	52	81
Beans buyers	31	24	38	21
Association	5	10	13	2
Extension workers	0	0	0	2
Premium price for high quality?	57	44	79	100
Rank of Varieties				
	Samsoya 2(30%)	Samsoya 1 (70%)	Samsoya 2 (57.9%)	Local (90%)
	Samsoya1 (18.5%)	Local variety	Local (21.1%)	Samsoya 1 (10%)
	TGX 1448 (18.5%) Local	Samsoya 2	TGX 536 (10.5%)	
	TGX 536	TGX 1448	Others (10.5%)	
		TGX 536		
Cost per bag				
Local Variety	3,590	3,800	5,683	5,198
TGX 14448	-	-	-	-
TGX 536	4,467	5,000	-	-
Samsoya 1	4,650	5,500	-	-
Samsoya 2	5,050	5,500		
Quality as the most important	63	57	81	74
Price as the most important	16	13	8	2
Higher quality product important	80	71	94	83
Quality commodity as important	19	21	25	52
Reasons for the importance of high quality commodity				
Good demand	17	19	21	33
Good storage	4	3	2	17
Good price	8	20	25	10
Other reasons	16	1	15	12
Training on improved quality				
Training available	3	0	4	2
Training available to farmers	11	0	27	57
Training available to household	0	11	0	12
Training available to hired workers	7	9	8	2
Those with benefit advance payment	37	13	0	9
Average number of 50kg produces	245	20	188	58
Average cost per 50kg bag	7,299	5,236	7,740	3,136

Table 1.4: Labour and Environmental Issues

	KADUNA	BENUE	PLATEAU	KANO
No of Male in household	5	4	4	5

No of Females in household	2	3	3	5
No of Male in off farm work	3	2	2	5
No of Female in off farm work	4	2	2	3
Causes of changes: Middlemen	23	33	67	26
Trading improved varieties	45	21	15	41
Improved Credit facilities	24	9	4	7
Influence of Association	7	29	6	2
Any land encroachment?	7	10	2	0
Conflict over other resources?	12	4	4	0
HIV/AIDS a problem?	24	24	44	2
Intervention: Awareness creation	28	44	73	93
Giving ART	5	1	8	5
Problem with FIREWOOD?	13	29	38	19
Deforestation	4	13	35	0
Problem with WATER?	7	20	29	12
Marital Conflicts	13	7	0	7

Table 1.5: Cross-Tabulation of Income and Access to Credit

Access to Credit	Benue			Kaduna			Kano			Plateau		
	V. Easy	Easy	Difficult	V. Easy	Easy	Difficult	V. Easy	Easy	Difficult	V. Easy	Easy	Difficult
Income range												
≤ 50,000	6%	59%	35%	17%	0%	83%	0%	20%	80%	0%	20%	80%
50,001 - 100,000	15%	54%	31%	0%	25%	75%	0%	0%	100%	0%	67%	33%
100,001 - 500,000	0%	100%	0%	0%	20%	80%	0%	0%	100%	14%	29%	57%
> 500,000	0%	0%	100%	0%	22%	78%	0%	14%	86%	0%	0%	100%

Male

Access to Credit	Benue			Kaduna			Kano			Plateau		
	V. Easy	Easy	Difficult	V. Easy	Easy	Difficult	V. Easy	Easy	Difficult	V. Easy	Easy	Difficult
Income range												
≤ 50,000	9%	45%	45%	50%	0%	50%	0%	20%	80%	0%	25%	75%
50,001 - 100,000	18%	45%	36%	0%	30%	70%	0%	0%	100%	0%	67%	33%
100,001 - 500,000	0%	100%	0%	0%	29%	71%	0%	0%	100%	20%	0%	80%
> 500,000	0%	0%	100%	0%	14%	86%	0%	14%	86%	0%	0%	100%

Female

Access to Credit	Benue			Kaduna			Kano			Plateau		
	V. Easy	Easy	Difficult	V. Easy	Easy	Difficult	V. Easy	Easy	Difficult	V. Easy	Easy	Difficult
Income range												
≤ 50,000	0%	83%	17%	0%	0%	100%	0%	0%	0%	0%	0%	100%
50,001 - 100,000	0%	100%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%
100,001 - 500,000	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	100%	0%
> 500,000	0%	0%	0%	0%	50%	50%	0%	0%	0%	0%	0%	0%

APPENDIX 2: Analysed Data for Household Processors

Table 2.1: Household processors – units of measure & scale of trading

	KADUNA (n=11)	BENUE (n=10)	PLATEAU (n=14)	KANO (n=9)
Processing equipment available for use				
Weighing machine	9	--	--	22
Crushing machine	--	--	--	11
Steaming machine	--	--	--	11
Tray	9	--	--	--
Sieve	82	80	79	11
Aluminium pot	100	90	100	11
Bucket	64	100	50	11
Basins	36	100	93	11
Plastic/iron drum	--	--	7	--
Grinding machine	--	80	--	78
Shifter	-	-	7	-
Frying pan	--	20		--
Bowl	9	--	7	--
Cost of equipment (Naira)				
#Weighing machine	1,500	-	-	7,375
*Sieve	921	856	193	1,000
Source	Local mkt	Local mkt	Local mkt	Local mkt
Aluminum Pot	2,794	7,862	3,845	8,000
Source	-	Local Mkt	Local Mkt	-
Basins	10,050	3,171	1,720	-
Drums		4,812	800	
Source	Local mkt	Local mkt	Local mkt	
Quantity used or produced per day				
25kg bags for cake	--	1	--	--
2kg bags Soya cake	--	2	--	--
Mudu of Soya bean	4	--	--	1
Mudu of Soya cake	133	--	--	2
Mudu of Soya	7			
Slices of cake	1,200		--	--
Mudu for meal		21		2
Bag for MEAL		3	--	1
Qty of meal	--	--	--	--
Kg of Soya for meal	--	76	--	--
Qty of processed beans per day				
25kg of beans	--	1	--	--
Mudu of beans	10	2	14	7
Kg of cake /day	--	116	--	--
Mudu of cake per day	5	1	--	1
Slices of cake	1,500			
No of bags (mean)	--	4	1	1
Litres of milk	--	88	3	25
Bag of Daddawa		1		1
Mudu of Daddawa		6		
Basin of daddawa/mudu			2	
Kg of Daddawa		140		
Mudu of Soya			14	
Slices of cake	--	--	320	--
Mudu of meal per day	1,000	70	2	2

	KADUNA (n=11)	BENUE (n=10)	PLATEAU (n=14)	KANO (n=9)
Litres of milk	20		4	20

Table 2.2: Production Regime

	KADUNA (n=11)	BENUE (n=10)	PLATEAU (n=14)	KANO (n=9)
Produce all year round				
Process beans	--	30	--	44
Qty processed (25kg)	--	3	--	2
Process cake	64	40	14	44
Qty processed (tons)	900	21		
Process Meal	--	30	--	--
Qty processed (tons)	--	13	---	--
Process Soya milk?	18	50	29	11
Charges per service in naira				
Soya cake (mean)	--	146	--	55
Daddawa	--	300	--	--
Soya paste	--	--	--	30
Quantity of Soya cake produced per day				
In bags (mean)	4	--	3	4
In basin	--	11	--	--
In mudu	333	--	500	250
Litres of Soya oil				
In litres	--	48	170	--
Other products derived from processing of other commodities				
Soya cake	60	70	33	44
Soya milk	30	60	40	11
Soya meal	0	30	0	33
Animal feeds	9	--	--	11
Daddawa	9		--	--
Paste	--	--	--	11

Table 2.3: output/productivity

	KADUNA (n=11)	BENUE (n=10)	PLATEAU (n=14)	KANO (n=9)
Those who processed target commodities all year round				
Soya beans	0	30	0	44
Soya cake	70	40	13	44
Soya meal	0	30	0	0
Soya milk	20	50	27	11
Daddawa	10	60	13	0
Average quantity of commodity produced during peak season				
Soya beans (25kg)	6	37	2	0
Soya cake (25kg)	6	37	2	0
Soya meal	0	16	0	0
Full fat Soya	0	43	20	0

	KADUNA (n=11)	BENUE (n=10)	PLATEAU (n=14)	KANO (n=9)
Average quantity of commodity produced during off-peak season				
Soya beans (25kg)	2	12	1	0
Soya cake (25kg)	12	5	0	0
Soya meal (25kg)	0	8	0	0
Full fat Soya	0	23	0	0
Average number of days of holding commodity before sale or pick-ups				
Soya beans	0	28	1	0
Soya cake	0	4	0	1
Soya meal	0	14	0	0
Soya milk	0	1	2	1
Daddawa	1	7	3	0
Commodities with identified quality grades				
Soya beans	10	20	0	11
Soya cake	0	30	7	11
Soya meal	--	--	--	--
Soya milk	0	30	20	0
Daddawa	10	10	13	0
Adulterated commodity availability				
Yes, available	90	60	13	100
Ways of identifying adulterated commodities-Soya cake				
Smell	10	10	0	0
Texture	10	30	7	78
Viscosity	--	--	--	--
Price	0	10	7	0
Package	10	0	0	0
Labeling	--	--	--	--
Ways of identifying adulterated commodities-Soya meal				
Smell	10	0	0	11
Texture	10	10	0	22
Viscosity	0	0	7	11
Price	20	10	7	0
Package	10	10	0	0
Labeling	--	--	--	--
Ways of identifying adulterated commodities-Soya oil				
Smell	0	0	7	0
Texture	0	0	7	0
Viscosity	0	10	0	0
Price	0	10	7	0
Package	10	0	0	0
Labeling	--	--	--	--

Table 2.4: Credit and Transport Issues

	KADUNA (n=11)	BENUE (n=10)	PLATEAU (n=14)	KANO (n=9)
Credit availability	100	60	20	11
Type1: loan	80	0	0	11
Condition for loan: payback period	40	0	0	11
Condition for loan: guarantor	30	0	0	0

	KADUNA (n=11)	BENUE (n=10)	PLATEAU (n=14)	KANO (n=9)
Condition for loan: collateral	30	0	0	11
Type1: Thrift	0	50	7	0
Condition for thrift: payback period	0	50	7	0
Condition for thrift: guarantor	0	50	7	0
Condition for thrift: collateral	0	0	7	0
Source of credit:				
Banks	70	0	7	11
Source of credit:				
Produce association	0	20	0	0
Source of credit:				
Family /friends	20	30	13	0
Source of credit:				
Local Bam	--	10	--	--
Access to loan: easy	20	20	0	0
Interest on loan: 8%	20	0	0	0
10%	0	10	7	0
Unique technology	30	30	7	11
Improved technology	30	20	7	11
Type of Training attended				
Ibadan Programme	--	30	--	11
Programme Effective	--	100	--	100
Programme affordable	--	33	--	0
UNICEF paid for training		67	--	100
Labour available?	90	80	60	56
No of months Processing takes place	12	10	5	11
Ave. no of days worked in Peak Season	26	11	5	18
Ave. no of days worked in off- Peak season	26	11	6	16
TRANSPORT MODE				
Human Potage	10	30	40	11
Provided by self	10	30	20	11
Auto bike	--	30	--	--
Owned auto bike	--	20	--	--
Taxi available	0	30	0	11
Taxi owned	0	20	0	22
Buses available	30	30	27	11
Owned bus	0	20	7	11
Quality or Price more Important				
Quality more important	90	60	80	100
Training on quality available	70	10	60	22
Attended training on quality	60	0	13	22
Strive for higher quality	70	100	73	33

Table 2.5: Other Issues

	KADUNA (n=11)	BENUE (n=10)	PLATEAU (n=14)	KANO (n=9)
Process own product more profitable	80	70	60	44
Mean Annual income in Naira from processing	80,000	69,375	26,750	118,800
Changes observed				
Price Instability	10	40	7	0
Increase Demand	10	20	13	0

APPENDIX 3: Analysed Data for Artisanal Processors

Table 3.1: Artisanal processors – units of measure & scale of trading

Characteristics	Kaduna (n=21)	Benue (n=15)	Plateau (n=26)	Kano (n=22)
Processing Equipment Used-weighing scale	0	3	0	0
Processing Equipment Used-crushing machine	5	7	0	55
Processing Equipment Used-steaming machine	0	7	0	14
Processing Equipment Used-oil press	0	7	9	32
Processing for : sale	57	80	0	59
Service	5	0	--	41
Both	0	7	--	0
Main product derived –soya cake	0	20	27	18
Main product derived-poultry feed	0	7	0	0
Main product derived-soya milk	5	7	0	0
Main product derived-cassava flour	0	7	0	0
Main product derived-daddawa	0	7	0	0
Main product derived-soya oil	5	7	0	0
Produce soya beans all year round	29	27	0	32
Produce soya cake all year round	33	40	0	5
Produce soya meal all year round	5	40	0	9
Produce soya milk all year round	14	33	0	0
Produce daddawa all year round	10	27	0	0
Produce other products all year round	10	7	0	36

Other equipments identified include: big-frying bowl, extracting machine, generators, hammer miller, refrigerator, and threshing machine

Characteristics	Kaduna (n=21)	Benue (n=15)	Plateau (n=26)	Kano (n=22)
Quality of product available				
Bean	29	33	64	27
Cake	10	33	0	36
Meal	0	0	9	18
Milk	5	7	0	14
Daddawa	0	20	0	0
Others	5	0	0	5
Any adulterated product	24	13	0	5
Identification of adulterated product				
Soya meal- smell	5	40	0	0
Soya meal-texture	0	20	0	0
Soya meal-viscosity	100	100	100	100
Soya meal-price	0	13	0	0
Soya cake-smell	29	47	0	0
Soya cake-texture	0	27	0	5
Soya cake-viscosity	100	100	100	100
Soya cake-price	0	13	0	0
Soya oil-smell	19	40	0	0
Soya oil-texture	0	7	0	0
Soya oil-viscosity	0	13	0	0
Soya oil-price	0	20	0	0

Characteristics	Kaduna (n=21)	Benue (n=15)	Plateau (n=26)	Kano (n=22)
Availability of credit	14	60	0	5
Type of credit-loan	0	20	0	5
Type of credit- thrift	0	40	0	0
Type of credit- lease	0	7	0	0
Source of credit- bank	10	13	0	5
Source of credit-produce association	0	33	0	0
Those who use unique practice	24	7	0	23
Those using improved technology	5	40	0	46
Improve technology is cheaper	0	20	0	32
Improve technology is faster	5	13	0	41
Improve technology is better	0	20	0	32
Those who like new technology	48	20	0	59
Trained on Power/electricity generation	10	7	-	5
Trained on EMEX technology	0	0	-	16
Trained on Water extraction	10	0	0	0
Programme effective	10	7	0	5
Programme affordable	10	7	0	5
Programme self sponsored	5	0	0	0

Unique practices employed include; application of sweet pap, good customer care, add magi, sieving of bean, soaking of beans, hygiene

Characteristics	Kaduna (n=21)	Benue (n=15)	Plateau (n=26)	Kano (n=22)
Availability of labour	76	73	0	91
Average male workers in peak season	76	24	0	1,286
Average female workers in peak season	24	146	0	231
Average male workers in off-peak season	19	35	0	251
Average female workers in off-peak season	17	121	--	216
Ave. number of months worked in a year	8	7	--	7
Ave. number of days in a month for processes	20	13	--	17
Availability of human portage	5	13	0	0
Availability of cart	0	0	0	5
Availability of bike	19	20	0	0
Taxi readily available	19	13	9	5
Buses readily available	10	0	0	0
Truck readily available	10	13	0	27
Challenges-poor market	14	40	0	23
Challenges- high taxes	0	7	0	5
Challenges-high transportation	10	13	0	0
Challenges- break down of machines	0	0	0	9
Other costs of production-taxes	33	20	0	86

Characteristics	Kaduna (n=21)	Benue (n=15)	Plateau (n=26)	Kano (n=22)
Other costs of production-association fees	0	27	0	50
Any source of information on quality	38	53	0	64
Source of information-Association	5	40	0	0
Source of information-farmers	5	33	0	0
Source of information-extension workers	0	40	0	0
Source of information-input suppliers	0	0	0	9
Source of information-other processors	76	73	0	73
Quality as more important	76	73	0	73
Cost as more important	19	0	0	9
Training available for improved technology	10	33	0	5
Ever attended training on quality	10	27	0	5
Strive for higher quality	62	80	0	73
Own processing brings more income	29	40	0	73
Own processing brings more profit	29	40	0	73

APPENDIX 4: Analysed Data for Industrial Processors

Table 4.1: input issues

	Kaduna-6	Plateau-2	Kano-3
Equipment**			
Toasting machine	0	50	67
Crushing machine	67	0	100
Steaming machine	0	0	67
Oil press	33	50	67
Source and average price of equipment			
Toasting machine	--	--	imported
			N1,200,000
Crushing machine	Locally made	--	Imported
	N27,250		N15,500,000
Steaming machine	--	--	Imported
			N2,050,000
Oil press	locally made	Imported	Imported
	313,333		6,150,000
Processing for:			
Sale	83	100	67
Service	17	--	33
Main material used***			
Soya beans	100	100	100
Soya cake	33	0	67
Main product derived			
Livestock feed	83	50	0
Oil	0	0	100
Biscuit	0	50	0
Lecithin	0	50	0

** other equipment mentioned *cleaner extraction plant, mixer, incline hanger, oven , pellettising, refining equipment.*

***Other materials used: *groundnut, ground nut cake, palm kernel, maize, sugar and wheat.*

Table 4.2: target

	Kaduna-6	Plateau-2	Kano-3
Produce comm.. all year round			
Oil	50	50	100
Feed	67	50	0
Cake	17	0	33
Major customers			
Animal feed/livestock	67	50	33
Consumers and others	0	50	33
Availability of grade-oil	50	50	67
Availability of grade-feed	83	50	0
Availability of grade-cake	33	0	0

Table 4.3: credit availability

	Kaduna-6	Plateau-2	Kano-3
Availability of credit facilities	67	50	33
Type of credit-loan	67	0	0
Source credit from bank	50	100	33
Source credit from association	17	0	0
Source credit from suppliers	0	100	0
Ease of getting credit- easy	17	50	--
Not easy	83	50	100

	Kaduna-6	Plateau-2	Kano-3
Interest on loan 7%	67	0	0
Interest on loan 8%	0	0	33
Use any unique practices	67	100	100
Types of unique practices-			
i. After sale	17	--	--
ii. Customer care	17	--	--
iii. Packaging	--	50	-
iv. Pelleting	--	50	-
v. Delivery service	17	--	-
vi. Quality control	--	--	33
vii. Soaking in water	--	--	33
viii. Testing of quality	--	--	33
Using improved technology	33	100	67
Reasons for use of improved tech.			
i. cheaper	0	100	33
ii. faster	33	100	33
iii. better production	17	50	67
Like to procure new technology	67	100	100

The new technology on which they were trained include: AUTOMATED MILLING, Deodorizer, PACKAGING, ROASTER, automated fish plating machine, automated milling.

Table 4.4: labour and input issues

	Kaduna-6	Plateau-2	Kano-3
Labour readily available	83	100	100
Average number of workers- peak season			
Male	25	--	1,800
Female	40	225	1,000
Average number of workers- off peak season			
Male	13	--	--
Female	17	50	--
Human portage readily available	17	50	33
Human portage provided by owner	0	50	0
Buses available as means of transportation	50	0	33
Average cost of transporting a bag	₦ 1175	--	--
Areas of high cost-raw materials	67	50	0
Areas of high cost-transport	17	0	0
Areas of high cost-energy	0	50	100
Challenges faced: power failure			33
Challenges faced: -poor market	17	0	100
Other cost of production-taxes	33	50	100
Average taxes paid per transaction	₦20,000	--	₦ 400,000
5% taxes on feed-mill	17	50	--
Other cost of production- Association fees			67
Average association fees paid per annum			₦ 3,500

Q25b- Actions taken to address areas of high cost include; union intervention, purchase own vehicle, stock-piling, bulk purchase and lobbying govt. support.

Table 4.5: other issues

	Kaduna-6	Plateau-2	Kano-3
Any adulterated product in the market	17	50	33
Identification of adulterated soya meal-smell	67	0	0
Identification of adulterated soya meal-texture	50	0	33
Identification of adulterated soya cake-smell	17	0	0

	Kaduna-6	Plateau-2	Kano-3
Identification of adulterated soya cake-texture	33	0	0
Identification of adulterated soya oil-smell	0	0	33
Identification of adulterated soya oil-package	0	0	33
Any source of information on quality product	83	100	100
Information source-Association	67	50	0
Information source- farmers	17	50	0
Information source-other processors	0	0	33
Which is more important-quality	67	50	100
Which is more important-cost	0	50	0
Which is more important-both	17	0	0
Training available for improved quality	83	100	33
Ever attended training on improved quality	67	100	33
Those who strive for higher quality	83	100	100
Ways of striving for higher quality: <u>Analysis</u>	--	50	33
Ways of striving for higher quality: <u>Quality control</u>	17	50	67
Ways of striving for higher quality: avoid <u>contamination</u>	17	--	--
Ways of striving for higher quality: <u>SON standard</u>	33	0	0

Q36- important aspect of quality RAW MATERIALS, blending, colour, taste, ,odour,viscosity, maintenance, test, smell , weight.

APPENDIX 5: Analysed Data for Soya Bean Traders

Table 5.1: Soya Beans Traders – units of measure & scale of trading

	KADUNA	BENUE	PLATEAU	KANO
Sold in Mudus	19	41	35	10
Sold in 100kg bags	67	21	56	80
Scale : Mudus	25	38	40	20
Scale: Tins	0	0	8	0
Scale of trading:				
<100bags	16	21	44	25
100-200 bags	16	21	44	25
200-400 bags	6	3	0	5
400-1000 bags	4	12	0	0
>1000 bags	2	0	0	30

Table 5.2: Cost per bag

Categories	Kaduna	Benue	Plateau	Kano
For Mudus	5,545	3,576	5,060	1,588
For Tins	-	-	-	-
<100 bags	2,537	4,250	4,437	5,020
100 – 200 bags	6,713	2,340	-	4,600
300- 400bags	1,500	4,500	-	5,500
100-200 bags	2,450	3,500	-	-
200-400 bags	-	-	-	5,086
400-1000 bags	-	-	-	-
>1000 bags	2	0	0	30
Cost of buying products				
<N100	36	9	9	0
N101- 500	24	23	4	11
N501-1000	4	0	0	0
N1001- 6000	30	55	87	83
>N 6000	6	13	0	6

Table 5.3: Sources of produce

Categories	Kaduna	Benue	Plateau	Kano
Farmer	55	32	16	0
Middlemen	0	6	0	5
Local Community	0	35	0	5
Outside community	8	3	28	10

Table 5.4: Destination of produce

Categories	Kaduna	Benue	Plateau	Kano
Local Market	45	29	0	0
Wholesalers	0	3	0	0
Local Community	16	3	40	0
Industries	4	0	0	0

Table 5.5: Equipment

Categories	Kaduna	Benue	Plateau	Kano
Weighing Scale	4	35	4	30

Mudus	33	44	40	35
Tiya	8	9	4	0
Bags	23	21	8	5

Table 5.6: Varieties traded

Categories	Kaduna	Benue	Plateau	Kano
Varieties				
Local variety	33	38	20	0
tgx 1448-2e	0	38	0	0
samsoya 1,2 and others	67	24	80	100
Available grades				
Grade 1	92	44	64	80
Grade 2	10	18	12	10
Grade 3	8	3	0	0
Sources of available grades[1]				
Grade 1 (within state)	51	56	72	25
Grade 2	6	27	40	20
Grade 3	6	0	8	20
Average cost of each grade per mudu				
Grade 1	--	150	60	--
Grade 2	--	150	60	150
Grade 3	--	--	50	--
Reasons for trading in target commodity				
Profitability	69	74	68	60
Availability	16	35	8	35
Demand	31	65	32	50
Grade mostly patronized				
Local variety Grade 1	67	27	60	25
Factors mostly influencing people's choice				
Quality	88	79	72	100
Price	10	12	16	0

Table 5.7: Market issues

Categories	Kaduna	Benue	Plateau	Kano
Market guarantee:[2]	-	-	-	-
Access to the poor	94	79	92	40
Equal opportunity for all	98	53	92	80
Freedom of choice	98	94	88	100
Safety guaranteed	96	91	76	100
Constraints in entering into the market				
Cost of materials	35	62	32	40
Association's fees	14	41	12	0
Securing stall	49	59	28	5
Securing customers	31	50	44	40
Others[3]	6	9	0	5
Who determines who may enter the market				
Self	92	77	88	20
Association	4	18	4	10
Others/Guarantors	4	0	0	25
Usual places/agents where traders make purchases				

Categories	Kaduna	Benue	Plateau	Kano
Farmers	61	32	60	55
Association	4	0	0	0
Wholesalers	6	27	8	10
Processors	0	3	0	0
Agents	10	12	8	30
Farm gates	6	15	8	0
Where target commodity is usually offered for sale				
Farm gate	4	0	0	0
Rural market	14	9	8	0
Feeder market	2	21	16	5
Central market	57	41	28	60
Target customers for sale of target commodities				
Household consumers	88	88	20	40
Artisanal processors	10	71	20	30
Industrial processors	20	38	24	30
Wholesalers	31	32	68	25
Retailers	29	50	24	55
Exporters	6	9	4	20
Livestock farmers	23	44	4	30
Others	4	--	--	--

Other reasons for trading in different grades of the commodity include *“easy to store” “fairly consumed” “people pay in cash”*

Table 5.8: Transport and transactional issues

Categories	Kaduna	Benue	Plateau	Kano
Challenges in transport and transactional costs				
Transport	74	91	80	30
Transaction	71	85	52	15
High cost areas in transport and transaction				
Handling	2	32	0	10
Storage	8	32	12	15
Marketing	4	35	0	10
Transportation	86	77	84	20
Others	2	3	0	0
Other costs encountered in marketing				
Taxes	77	76	12	85
Association Fees	32	47	20	35
Other levies	2	59	48	5
Cost of Taxes				
>N100	38	50	16	0
N100 – N500	35	0	0	40
N501 – N1000	0	0	0	20
> N1000	27	0	0	30
Average tax	297	41	20	1,289
Cost of Association Fees				
>N100	20	21	4	35
N100 - N500	4	14	16	5

N501 - N1000	10	6	0	5
> N1000	0	0	0	5
Average ass. Fees	170	115	168	3,340
Average levies	30	33	117	200
Average bribe	250	40	53	--

Q20: Some ways in which challenges were addressed include;

- .Advice traders to go into soyabeans
- Ask the government to help boost
- Association helps by providing transport fare; assist with transport stability; providing trucks; ensuring uniformity of transport costs; negotiating prices; giving loan to members, etc.
- Purchase high quantity in peak season

Q22 c: Cost of Credit: 10% mentioned by seven persons in Benue, "High Interest" mentioned by 2 persons in plateau.

Table 5.9: Production costs and accessibility to credit

Categories	Kaduna	Benue	Plateau	Kano
Availability of credit				
Credit available	16	44	4	15
Easy accessibility	16	24	24	30
Buy produce on credit	4	3	.	10
Source of credit:				
Friends/relations	12	3	8	20
Traders' Association	67	29	.	30
Others	2	.	.	.
Sell commodity on credit	53	14	12	60
Condition for obtaining loan				
Payback period	6	24	28	10
Guarantor	0	24	0	0
Collateral	-	-	-	5
Source of grade 1				
From local community	79	50	25	0
Local Market	11	-	-	-
Within the LGA	5	50	-	8
Within the state	-	-	-	17
From Kaduna	-	-	-	42
From Benue	-	-	-	8
From other places	5	-	50	-
Price of Grade 1	4,480	4,965	2,883	4,539
Price of Grade 2	-	4,350	305	-

Table 5.10: Labour availability and transportation

Categories	Kaduna	Benue	Plateau	Kano
Availability of labour				
Male labour available	90	50	36	90
Transport cost per bag (N)	478	109	47	35
Female labour available	4	3	0	0
Transportation				
Human portage available	18	24	8	10
Animal available	-	-	-	-
Cart available	8	-	8	-
Cart owned by trader	-	-	-	-
Bike available	8	-	8	-
Bike owned by trader	2	6	4	0

Categories	Kaduna	Benue	Plateau	Kano
Taxi available	-	1	-	-
Taxi owned by trader	-	1	-	-
Buses available	78	32	4	90
Buses owned by traders	10	9	4	10
Truck readily available	-	-	-	-
Truck owned by trader	-	2	-	-
Distances & Costs				
Animals	76	-	20	-
Cost per bag- N	50	-	-	-
Cart	100	50	2	-
Cost per bag (N)	100	200	10	20
Bike	10	18	25	0
Cost per bag (N)	200	107	20	-
Taxi	-	281	-	-
Cost per bag (N)	100	90	-	-
Buses	109	48	95	267
Cost per bag (N)	1,391	122	125	255
Truck	2	-	-	-
Cost per bag (N)	200	-	-	-
Storage				
Store in trays	74	44	44	30
In bags	4	0	0	10
In drums	-	-	-	15
In Silos	6	0	0	5
In others	8	0	0	25
Where stored				
At home	74	41	44	35
In the shop	8	0	0	20
In other places	10	0	0	35
Holding before sale				
Days	4	45	1	2
Weeks	2	2	28	1
Months	1	8	6	0
Quality issues				
Is there quality?	90	38	44	80
Quality by colour	16	4	-	45
Size of bean	2	-	0	20

1 Note Female labour for loading is generally poorly available

2. Traders do not provide labour themselves

For q27: Respondents also mentioned wheel barrow as a means of transport but they do not use them for lack of access.

Q28b Traders store at home, in the market and cover with tarpaulin

On quality, traders mentioned "free of pebbles" as one of the main qualities.

Table 5.11: Quality and Standards

Categories	Kaduna	Benue	Plateau	Kano
Quality issues				
Is there quality? - Yes	90	38	44	80
Quality categorized by colour	16	4	-	45
By size of bean	2	-	0	20
Premium price for quality?	92	27	44	70
Quality more important	100	32	32	85
Price more important	0	15	20	5
Training for quality	23	6	4	5
Attended training	20	9	4	5

Categories	Kaduna	Benue	Plateau	Kano
Higher quality important	86	41	48	55
Purchase of commodity				
*Buy on credit?	4	3	-	10
Source of credit				
Friends/Relations	12	3	8	20
Association	67	29	0	30
Credit- relations 1 week	2	-	-	2
Actual cost – credit- relations	67	29	0	30
Additional costs	200		5*	
Sales of products				
Sells on credit?	53	15	12	60
To local processors	6	0	0	10
Members of Community	20	-	-	-
Actual costs	1,269	4,500	3,764	4,816
Additional costs	168	500	30	200
No of 50 kg bags sold-Peak	349	145	940	-
100kg bags sold _peak	382	291	91	120
Mudu	142	20	35	8,026
Quantity sold (100kg bags)	258	201	450	2,744
Quantity Consumed (100kg bags)	2	6	8*	18
Quantity as gift (100kg bags)	5	2	.9*	10.0*

Table 5.12: Other issues

Categories	Kaduna	Benue	Plateau	Kano
Trends of income from commodity in recent years				
Increased	69	29	44	30
Decreased	18	9	8	55
Ownership of product				
Own product	92	41	40	85
Own product more important	63	38	44	85
Own product more profitable	63	41	36	85
Household members engaged in target commodity trading (mean)				
Male	3	4	3	1
Female	2	3	2*	0
Household members engaged in trading with the trader (mean)				
Male	3	3	2	1
Female	2	2	1*	0
Household members engaged in other employment (mean)				
Male	4	2	4	0
Female	4	3	2*	0

Table 5.13: Environmental Issues

Categories	Kaduna	Benue	Plateau	Kano
Conflicts				
Experienced land Encroachment?	8	0	4	0
Conflict over other resources	7	8	0	0
HIV/AIDS Issues				
HIV/AIDS as problem	14	9	28	35
Awareness as Control of HIV	10	0	8	5
Other Issues				

Categories	Kaduna	Benue	Plateau	Kano
Is land getting better?	53	12	8	0
Problem accessing fuel-wood?	12	9	12	0
Problem accessing water?	2	3	4	0
Marital conflicts?	27	24	24	0

Q49 & q50: There were only 5 responses and conflicts reported were mainly related to encroachment by Fulani herds men.

Q51: Elders intervention was mentioned by one person. Three others indicated that NOTHING was done.

Q52b: Effect: One person did not want to discuss it. Three other persons said it reduces population and labour availability and that many people in their community have died of the disease. It is said to also leave the elderly with no children to take care of them.

Q56b: Few relevant reasons were tracked. They include: religion, culture and poor understanding.

For q40: maize, millet, rice and beans were other commodities sold in order of income generation.

Reasons for increment in income in the sale of commodity include: . it is in highy demand, products are good, cassava and sorghum crashed , economic recession, and high turnover.

Reasons for decrease in income include: armed robbery attack on the way, low demand of the product, its availability in the market.

[1] Percentages for those sourced within the state were reported. Note that percentages did not add up to 100%.

[2] Percentages may not add up to 100%

[3] Other forms of challenges identified include rodents eating the stored beans, constraint of instability of prices and transportation

APPENDIX 6: Analysed Data for Intermediate Traders

Table 6.1: Intermediate Traders – units of measure & scale of trading

	Kaduna (n=14)	Benue(n=6)	Plateau (n=10)	Kano (n=10)
Unit of measure				
Mudu		50		
Tin	0	33	0	0
25kg bags	64	67	10	10
50Kg bags	7	67	100	60
100kg bags	7	50	0	30
Scale of Trading				
Mudus	14	50	0	0
<100 bags	0	33	0	70
100 to 200 bags	7	0	0	0
200-400 bags	14	0	0	0
400-100 bags	0	0	100	0
Average cost (₦)	1,136	2,002	5,290	3,347
Source: Within the community	36	50	40	20
Destination				
Local Market	7	22	-	10
Scale of trading (oil)				
25 litre Jerry Can	29	33	-	-
Average cost	1,200	2,000	-	-
Source				
Local Market	-	33	-	-
Equipment				
Scale	43	33	90	70
Mudu	21	33	10	10
Tiya	--	33	10	--
Grades of products				
Grade1 cake	29	67	70	60
Source of cake				
From Benue	7	17	30	40
Mudu for meal		21		2
From Kano	0	50	0	10
Trade Grade 1	0	17	50	40
Trade Grade 2	--	-	-	30
Trade Grade 1 MEAL	43	33	0	30
Source: Locality	21			
Cost per bag	1,083	116	--	2,680
Cost per Mudu			--	120
Cost per Tiya		150		
Why trade Feed?				
Profitability	14	67	60	70
Availability	0	33	20	0
High Demand	0	67	60	0
Why trade oil?			2	
Profitability	36	33	10	20
High Demand	7	33	0	10
Quality/price more important?	--	--	320	--
Are there adulterated commodities	36	33	80	80
Litres of milk	20		4	20

* Cost depends largely on the type of sieve.

#Note that two types of weighing scales were identified in Kano. One was 1,500 and the other 25,000. Averages of all mentioned were computed as the cost.

Table 6.2: Quality issues continued + commodity chain

	Kaduna (n=14)	Benue(n=6)	Plateau (n=10)	Kano (n=10)
Adulteration of Meal:				
Identified by smell	14	17	70	0
Identified by texture	36	0	60	80
Adulteration of Cake				
Identified by smell	0	33	20	0
Identified by texture	14	33	20	0
Adulteration of OIL				
Identified by smell?	29	0	0	0
Access to market guaranteed	93	100	80	50
Opportunity of access for all?	21	100	90	60
Constraints of trading Cake				
Cost of commodity:	14	100	70	40
Registration fee	7	33	0	0
Stall for display	14	83	90	0
Securing customers	7	67	60	10
Constraints for Meal				
Cost	57	33	0	10
Who determines price	0	30	0	33
Self	50	33	10	30
Sources of commodities				
Cake from Farmer	7	50	10	0
Meal from wholesalers	21	17	0	0
Oil from Wholesalers	21	17	0	0
Cake from processor	14	67	100	50
Meal from Processors	36	33	10	30
Where commodity is sold				
Cake at Site	7	17	0	10
Meal at Site	14	0	0	0
Cake at rural market	0	50	0	20
Meal at rural market	0	50	0	0
Oil at rural market		33		
Cake at feeder market	0	17	100	10
Meal at feeder market	0	0	10	10
Cake at central market	14	67	0	10
Meal at central Mkt	57	33	0	10
Oil at central Market	36	33	0	0
Sold to				
Household consumers	29	67	0	0
Artisanal processors	14	50	0	0
Industrial processors	14	0	0	0
Wholesalers	7	17	0	0
Challenges: Cake				
Transport	21	100	50	50
Transaction	14	67	0	50
Other Costs				
Taxes	36	33	20	20
Assoc. Fees	29	50	0	0
Credit				
Credit available	43	17	40	10
Credit accessible	0	0	10	0

Table 6.3: output/productivity

	KADUNA (n=11)	BENUE (n=10)	PLATEAU (n=14)	KANO (n=9)
Labour				
Male labour	79	100	90	80
Cost of labour (₦)	10	110	41	13
Female Labour	21	0	0	0
Cost of labour	10			
Transport				
Human	0	33	0	0
Auto bike	7	50	0	10
Owned	7	0	0	10
Bus available	21	83	0	10
Bus owned	7	0	0	0
Truck available	14	67	90	50
Truck owned	36	0	20	10
*Storage				
In Basins	0	17	20	0
In Bags	0	50	30	80
Length of Storage				
Days	0	3	2	1
Standard product?	7	50	90	0
Who determines it?				
Trader's Union	7	67	10	0
Government	0	0	10	0
+Others	14	67	10	0
Premium price: Cake	21	67	60	60
Quality more important for cake	29	83	90	20
Training for Cake	7	33	50	20
Marketing higher quality important	14	100	90	60

*Others include in fridges, drums
 Others include the baker, self

APPENDIX 7: Analysed Data for Large-Scale Traders

Table 7.1: Large Scale traders - units of measure & scale of trading

	Kaduna (n=12)	Benue (n=6)	Plateau (n=11)	Kano (n=10)
Unit of measure				
Mudu	--	--	9	--
25kg bags	67	17	18	10
50Kg bags	0	33	27	0
100Kg bags	17	17	0	0
25 litre jerry can	0	0	9	10
50 litre jerry can	0	0	0	50
Scale of trading				
<100 bags	58	83	36	0
<100 cartons consumer product	0	0	27	0
25 litre Jerry can	17	0	27	30
Drums	0	0	0	30
Average Cost	3,392	2,000	12,217	17,550
Equipment				
Weighing scale	17	0	36	0
Mudu	33	83	9	40
Grades of Items	Local mkt		Local mkt	Local mkt
Grade 1 of animal feed	58	100	9	0
Source : Benue	42	67	0	0
Grade 1 Products	0	33	18	0
Grade 1 Oil	25	0	27	90
Reason for trading – Animal feed				
Profitability	33	83	36	10
Availability	8	50	0	0
High Demand	33	67	27	0
More important: quality or price				
Quality	75	83	91	60
Market guarantee access	83	100	91	90
Equal opportunity?	67	100	91	100
Market guarantee choice	67	100	100	100
Constraints				
Cost of commodity	17	100	27	0
Stall for displaying items	25	33	0	0
Where commodity is sold				
Animal feed in feeder markets	0	33	27	10
Sell in central market	0	67	0	0
Consumer product in central market	17	33	18	0
Challenges				
Transport for animal feed	50	83	46	0
Transaction costs	8	50	0	0
Credit available	42	50	46	0
Type of credit				
Loan	17	0	55	10
Thrift	0	50	0	0
Inventory	-	-	9	-
Source: Bank	8	0	27	10
Source of commodity				
Outside the community	92	100	73	90
Labour				
Male labour available	58	100	27	30

Cost of male labour (₦)	58	215	525	500
Female labour available				

Other equipment mentioned: Bacco sacks; basin; bottles; bottles, 1 litre, 4 litre; frying pan; refrigerators; shovel & wheel barrow ; crusher, mixer

Table 7.2: Production Regime

	KADUNA (n=11)	BENUE (n=10)	PLATEAU (n=14)	KANO (n=9)
Transport				
Human portage	0	33	9	0
Provided by trader	--	33	9	2
Bike available?	-	22	-	-
Bike owned	-	22	-	-
Storage				
Store in bags	50	100	36	10
Days animal feed held	13	0	6	1
Weeks animal feed held	0	1	3	2
Quality of Animal feeds				
Yes	50	100	46	0
Products adulteration?	8	50	46	50
Adulteration in smell	25	67	18	0
Premium price for quality?	67	83	36	20
Attended training For				
Animal feed quality	17	33	27	0
Consumer goods	0	50	0	0
Producing higher quality important?	75	100	46	10
Buys on credit?	50	33	9	10
25kg trading Peak Season	30	70	7	0
50 kg bag	55	36	--	--
Increase in income on feed?	67	67	36	0
Ownership of product better	92	100	18	100
Male in employment	3	4	3	1
Female in employment	2	1	2	0

APPENDIX 8: Log-frame of All Data