

ABSTRACT

Soya Value Chain Baseline Survey

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 its 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
Trade/Marketers Bean (traders/warehouse 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	

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 N50,000 to N100,000 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 N50,000 and N100,000. 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 N500,000 and N1 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 N500,000 and N1 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 N50,000. In Benue State, majority of participants were females with an average age of 40 years and an estimated annual income of N30,000. 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 N50,000 and N500,000. 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 N16 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 N50,000 to N100,000. In Benue State, they were mostly female with between 15 and 30 years' experience in the business and average annual income of N80,000. 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 N50,000 to N1 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 N36.4 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 N100,000. Small holder farmers in Kano are much smaller proportionately (31%) and more than 20% of the farmers have annual incomes over N500,000. About 25% of the farmers in Kaduna also have annual income over N500,000. 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 N100,000 except in Kano where about 33% earn between N100,000 and N500,000.

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 N500,000 except in Kano where about 23% earn between N500,000 and N1,000,000 and about 32% earn over N1million.

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 N500,000 or less except in Kano where about 33% earn between N1,000,000 and N3.5million.

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 N100,000. Soy bean traders in Kano are much smaller proportionately (40%) and more than 30% of the traders have annual incomes over N500,000. About 14% of the traders in Kaduna also have annual incomes over N500,000. 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 N100,000, while majority in Kano (60%) have annual incomes of between N100,000 and N500,000. About 30% of intermediate traders in Kano have annual income over N500,000.

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 Farming

1. The farmers generally practice mixed farming and claim not to require chemical fertilizers when other crops are mixed with soya
2. 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.
3. Most farmers plant soya between May and July
4. 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.
5. Average yield is about 1.4MT/Ha in Kaduna, 700kg/Ha in Benue.
6. No part of soya is wasted because the leaves and husk are used as feed for cattle, poultry and pigs.
7. Most farmers indicated ready availability of improved seeds, fertilizer, and agro chemicals. However, not many of them can afford them.
8. A large proportion of the farmers' produce is sold and the rest is either consumed or given out.
9. Standard measures in soy beans trade include mudus, tiyas, tins, 25kg, 50kg and 100kg bags.
10. A 100kg bag of soy bean sells for between N3,000 and N5,000, depending on season and State.
11. 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.
12. Entry into Soya bean farming business is relatively easy across the States.
13. Availability of credit is relatively poor. Farmers therefore fund their farming activities from personal savings, friends and family members.
14. 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.
15. The role of middlemen in determining the market price.
 16. Splintering during threshing.
 17. High cost of agro-chemicals and fertilizers, which makes them unaffordable to resource-poor farmers.
 18. Low market demand, which discourages more production of soybeans.
 19. Problem of cattle rearing in the community.

Processing

1. Soybean is processed into soya oil, soy milk, soy cake (used in animal feed production), soy meal, daddawa and awara.
2. The processed soya is marketed through definite routes to consumers.
3. Processing of Soya has created alternative uses of the seed besides direct cooking for consumption.
4. 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.
5. 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.
6. 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.
7. Artisanal processors are mostly women processing soya beans into soya cake, soya milk, soya oil and soya meal.
8. They obtain soyabeans from their husbands' farms and the local markets, and sell the products from home and in the local market.
9. There are household and artisanal processors in Benue but no industrial processors.
10. Industrial processors are usually large scale operations processing soya into layers mash, growers mash, chick mash, broiler starter and finishers, and fish feed.
11. Their main customers are feed millers and poultry businesses from Kaduna and other parts of the country.
12. The equipment used by processors include milling machines, grinding machines, hammers, mixers, crushing machines, oil presses, cleaner, extraction plant, mixer, incline auger, oven, pelletizing and refining equipment, packaging plants, lorries, trailers and pick-up vans.
13. Accessibility to parts and maintenance are not problems for processors but funding of repair activities is usually problematic.
14. Demand for soya products is high therefore there is usually no need for long term storage. However, there are warehouses available for unsold stock.
15. 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.
- Overheating 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. o Credit is not available to processors.
- Poor market.
- High transportation costs.
- Continuous increase in prices of petroleum products. o 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.