

Cassava Production Challenges and Prospects in Ogbia Local Government District of Bayelsa State, Nigeria

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Abstract

Original Research Article

The study analyzed the problems and prospects of Cassava Production in Ogbia Local Government Area. The study sample was selected with a two-stage sampling technique which involved the random selection of eight communities from which 10 cassava farmers were selected to constitute a sample size of 80 cassava farmers. Data was collected using structured questionnaire, analysed using descriptive statistical tools and likert scale rating and displayed with tables. The results of the study showed that 60% of the cassava farmers were male, between the ages of 31-50 (80%), 85% were married with household size of between 1 – 5 individuals (62.50%). There was also high level of illiteracy as 56.25% of them had no form of formal education or the other. Cassava production was a profitable activity in the study area as gross margin analysis found that ₦24,700 was profit made in average from cassava. Furthermore, Cassava production also made rural employment available, had a broad market for by-products, had high yielding varieties, large domestic market, suitable to the land of the study area, among others. In contrast, the farmers did not consider that government policies were favourable towards cassava production, or that there was adequate research being carried out for improving cassava production. It is therefore recommended that, mechanized cassava production, harvesting, processing and preservation be made available by Government and related agencies to ensure for more profit and food security, a review of the Land tenure policy be made by the government to enable the farmers increase their produce. Also, Government should intensify educational programmes to raise the educational standards of the cassava farmers and in turn the increment of extension agents so they can reach out to needy famers.

Keywords: Cassava, Agriculture, Mechanized Farming, Production Challenges, Bayelsa

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INTRODUCTION

The cassava plant, which originated in South America's Brazil, is highly significant throughout the majority of sub-Saharan Africa. The tropical environment of humid West Africa is favorable to both native species and those from two other major crop origin centers: tropical Asia (South Asia/South-tropical Asia) and tropical America (Brazil to Mexico). Crops such as cassava and cocoyam (*Colocasia esculenta* and *Xanthosoma spp*) have taken root in this zone and are now among the most important AIVS (Maundu *et al.*, 2009).

In the Congo, Madagascar, Sierra Leone, Tanzania and Zambia, cassava leaves are consumed as a

vegetable (Haggblade & Zulu, 2003). Cassava leaves are rich in protein, vitamins, and minerals (Nassar & Ortiz, 2010). The variety and age of the harvested crop, as well as the soil, climate, and other environmental factors during cultivation, all affect the nutrient composition of cassava, (Spencer & Ezedinma, 2017).

Vegetables, plantation crops (including coconut, oil palm, and coffee), yam, sweet potatoes, melon, maize, rice, groundnuts, and other legumes are typically interplanted with cassava. After planting, tubers can be harvested six months to three years later, (International Institute of Tropical Agriculture, IITA, 2020).



Figure 1. Cassava plant; leaves, stems, and tubers (usually underground).

Beyond food, cassava is incredibly adaptable; its starch and derivatives can be used in a wide range of items, including meals, confections, sweeteners, glues, plywood, textiles, paper, biodegradable goods, monosodium glutamate, and medications. Alcohol and animal feed are made from cassava chips and pellets. Medium to large private farms in the major producing countries like Nigeria and Mozambique support some of these industrial uses of the crop, (IITA, 2020). Cassava is primarily produced for food especially in the form of *garri*, *lafun*, and *fufu* and also used in agribusiness sector as an industrial raw material. Data from the Collaborative Study of Cassava in Africa (COSCA) showed that 80% of Nigerians in the rural areas eat a cassava meal at least once weekly (Nweke *et al.*, 2002). Many types contain a material known as cyanogenic glucosides, which, if improperly treated, can produce lethal cyanide in the storage tubers. To lessen the possibility of producing cyanide, a variety of processing techniques are employed, including grating, sun drying, and fermenting (Gleadow *et al.*, 2014).

There are a number of natural barriers towards the realization of the food security goals, one of which is land availability. Bayelsa has a riverine setting, a lot of her communities are surrounded by water, (Angela, 2011). Therefore appropriate technological and management innovations should be incorporated to improve productivity (Bethel, 2015). In addition to being a vital food crop, cassava is a significant source of household income. The lack of research for the development of cassava processing prototypes and identification of applicable and useful technologies and incentives for local entrepreneurs to fabricate them, the slow development and lack of extension workers of improved agronomic practices for cassava production, and the rapid multiplication and dissemination of improved varieties to increase the availability and diversity of improved planting materials have all been strategic issues, (FAO, 2006). Therefore, this study

aimed to examine the problems and prospects in Cassava Production in Ogbia Local Government Area, Bayelsa State, Nigeria.

METHOD

Study Area

The study was carried out with a directed focus on cassava farmers in Ogbia Local Government Area of Bayelsa State Nigeria. Ogbia is one of the eight local government areas of Bayelsa State in the Niger Delta region of Nigeria. Its headquarters is in the town of Ogbia in the south of the area and it is located at latitudes 4°39' N and longitudes 6°16' E. It has an area of 695 km². It is the traditional home for crude oil where the first oil was discovered on Sunday 15th January, 1956 at Oloibiri (Awelewa, 2016). Ogbia Local Government Area has a population of 179,926 persons (National Population Commission; NPC, 2008) and has 15 Wards and 51 communities consisting: Anyama clan, Emeyal clan, Aburane clan and Oloibiri clan. The Anyama clan is made up of Eighteen Communities namely; Otuopoti, Otuogori, Otueggire 1 and 2, Onuebum, Ayakoro, Ologi, Otuedu, Anyama, Ologohe, Okiki, Otakanagu, Okodi 1 and 2, Ewarna, Epebu, Emadike. The primary occupation of the people in the study area includes farming, palm oil processing, petty trading, fishing and civil service, while other economic activities includes canoe carving, palm wine tapping, lumbering and *Ogbono* picking (Owutuamor *et al.*, 2019).

Sampling and Data Collection Method

A two-stage sampling technique was adopted for this study. The first stage involved the random selection of eight (8) communities. The second stage involved the random selection of ten (10) farmers in each community making a total sample size of eighty (80) cassava farmers. The data for this study was collected from primary sources. Primary data was collected with the aid of structured questionnaire and personal interviews. The data collected was based on the socio-

economic characteristics of cassava producers in Ogbia Local Government Area, knowledge of the problems faced by farmers in cassava production, the prospects in cassava production; and the costs and return in cassava production.

Data Analysis

The data from this study was analyzed using simple descriptive statistics (frequencies and percentages), and Likert scale ratings, while and tables were used for data presentation.

Model Specification

Cost Benefit Ratio. A cost-benefit analysis is a systematic process that was used to analyze which decisions to make and which to forgo. The cost-benefit analysis sums the potential rewards expected from a situation or action and then subtracts the total costs associated with taking that action.

Gross Margin analysis was used to determine the costs and benefit as well as profitability of cassava

production. Gross margin (GM) analysis. $GM = TR - TVC$. GM = Gross margin, TR = Total revenue, TVC = Total variable cost. The net return represents the total profit and would be determined using: $Net\ return = TR - TC$, Where: TR = Total revenue, TC = Total cost and Multiple Regression Technique. The implicit form of the equation is: $Q = F(X_1 + X_2 + X_3 + X_4 + X_5 + U)$, Where: Q = Net return (measured in ₦), X_1 = Purchase cost (₦), X_2 = Labour cost (₦), X_3 = Transport cost (₦), X_4 = Cassava marketing experience (years), X_5 = Storage cost (₦) and u = Error term assumed to fulfill all the assumptions of the classical linear regression model.

RESULTS AND DISCUSSION

Demographic characteristics

Table 1 shows that 23% fell between 11-30 years, 80% were between 31-50 years, and 16.25% fell between the ages of 51-70 years. This implies that the age range of 31-50 had the highest with a percentage of 80% and the mean age was 35.5.

Table 1: Respondents According To Age

Age (Years)	Frequency	Percentage (%)
11-30	3	3.75
31-50	64	80.00
51-70	13	16.25
Total	80	100.00
Mean	35.5	

Figure 2 shows that out of 80 cassava framers, 60% are representing male, while 40% are representing female. It could be said from the result displayed that cassava farming is a male dominated venture and this

confirms Bethel, (2015), that said “the domination of the male gender in cassava farming was due to the nature of the job which is mostly strenuous for their female counterpart”.

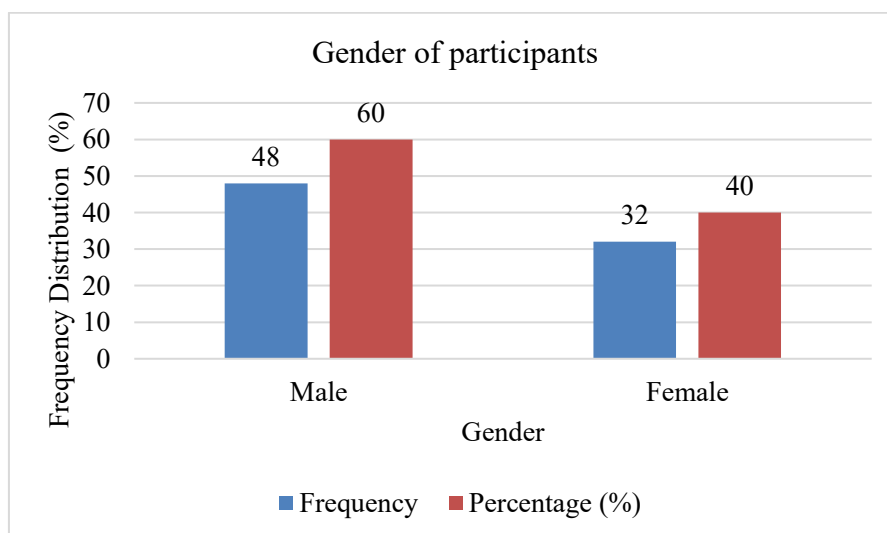


Figure 2: Distribution of Respondents based on Gender

Out of 80 respondents, 85% are married, 5% are single, and 10% are divorced. This indicates that married people are more involved in cassava farming as previously said by Bethel, (2015): cassava production is

dominated by married people and could be attributed to the western culture and tradition, where people are encouraged to marry at an early stage in life.

Table 2: Marital status, household size, religion educational level of and years of experience

Marital Status	Frequency	Percentage (%)
Single	4	5.00
Married	68	85.00
Divorced	8	10.00
Total	80	100.00
Household size	Frequency	Percentage (%)
1-5	50	62.50
6-10	29	36.25
11-15	1	1.25
>15	0	0.00
Total	80	100.00
Mean	5.5	
Religion	Frequency	Percentage (%)
Christian	66	82.50
Muslim	3	3.75
Traditional	11	13.75
Total	80	100.00
Educational Level	Frequency	Percentage (%)
No Formal Education	45	56.25
Formal Education	35	43.75
Total	80	100.00
Years of experience	Frequency	Percentage (%)
1-5	8	10.00
6-10	9	11.25
11-15	13	16.25
>16	50	62.50
Total	80	100.00
Mean		

Table 2 also showed the percentage distribution of respondents according to household size. The household size shows that 62.50% had the family size of 1-5 persons, 36.25% had the family size of 6-10 persons, 1.25% had the family size of 11-15 persons, no household >5. This in turn means there are more simple nuclear families in the area. The mean household size was 5.5 persons. About 82.50% are Christians, 3.75% are Muslim and 13.75% are traditional worshippers. This implies that there is no religion prohibition in cassava farming.

As shown, 56.25% of the respondents had no educational level, 43.75% of the respondents had formal education. This supports the findings of Ezech *et al.* (2012) that literacy would allow farmers to make effective and efficient use of the resources that are available on the farm. Some cassava farmers (10%) had

experience between 1-5 years, 11.25% had experience of 6-10 years, 16.25% respondents had experience of 11-15 years' experience, 62.50% of the respondents had experience of >16 years.

Socio-economic characteristics

Among the 80 respondents, the table shows that 96.25% had family labour, 3.75% had hired labour. This implies that family labour has the highest percentage (96.25 %). A good percentage (81.25%) earned between ₦50,000 – ₦100,000, 15.00% earned between ₦110,000 – ₦150,000, 2.50% earned between ₦160,000 – ₦200,000 while 1.25% earned an income of ₦210,000 and above. None of the representative respondent had access to credit facility, while 80 respondents representing 100% had no access to credit facility (Table 3).

Table 3: Respondents Labour, Annual Income and Access to Credit Facility

Labour	Frequency	Percentage (%)
Family labour	77	96.25
Hired labour	3	3.75
Total	80	100.00
Annual income	Frequency	Percentage (%)
₦50,000 – ₦100,000	65	81.25
₦110,000 – ₦150,000	12	15.00
₦160,000 – ₦200,000	2	2.50

>N210,000	1	1.25
Total	80	100.00
Access to Credit Facility	Frequency	Percentage (%)
Yes	0	0.00
No	80	100.00
Total	80	100.00

Prospects of Cassava Farming

The areas that cassava farmer found the activity to be prospectively favourable are pointed out in Table 4. The farmers consider cassava to be easily cultivatable (mean=3.65) and to match with the climate of the study area (3.61). Cassava also made rural employment available (3.39), had a broad market for by-products (3.21), had high yielding varieties (3.20), large domestic

market (3.18), suitable to the land of the study area (3.14), among others as shown in Table4. In contrast, the farmers did not consider that government policies were favourable towards cassava production (2.91), or that there was adequate research being carried out for improving cassava production (2.51) and it is in conformity with Dixon *et al.*, (2002).

Table 4: Percentage Distribution of Respondents According to Prospects

Prospects	SA	A	UD	DA	SA	Sum	Mean
Easy cultivation process	34	12	15	10	9	292	3.65
Favourable climate	25	30	2	15	8	289	3.61
Availability of rural employment	20	30	3	15	12	271	3.39
Markets for by-products	12	29	15	12	12	257	3.21
Availability of high yielding varieties	15	23	13	21	8	256	3.20
Availability of large domestic market	20	20	10	14	16	254	3.18
Land suitability	12	19	25	16	8	251	3.14
Increase in technology development	11	27	15	15	12	250	3.13
Availability of economies of scale,	12	19	24	15	10	248	3.10
The creation of vertical integration	12	15	14	32	7	233	2.91
Favourable Government policy	8	24	12	23	12	230	2.88
Availability of research and development institution	9	10	12	31	18	201	2.51
Development of urban areas	8	10	2	42	18	188	2.35

Costs and Return of Cassava Production.

Analysis found that on average, cassava farmers spent around ₦25,940.37 in total costs of which around 58.98% (₦15,300) went into variable cost items including purchasing planting materials, transportation, agrochemicals (17.35) and labour (30.84), while fixed costs items including baskets, wheelbarrows, farm sheds,

cutlass and hoe accounted for 41.02% of the total cost. On the returns side, the farmers on average made ₦40,000 from cassava sales in a week. Cassava farming was a profitable activity in the study area as gross margin analysis found that ₦24,700 was profit made in average from cassava as confirmed by Nassar & Ortiz, (2010).

Table 5: Costs and Return of Cassava Production.

Fixed cost items	Quantity	Depreciated Cost (₦)	Total	%
Baskets	5	143.25	716.25	2.76
Wheelbarrow	2	2,243.43	4,486.86	17.30
Shed	1	1,230.20	1,230.20	4.74
Machete	5	435.90	2,179.50	8.40
Hoe	4	506.89	2,027.56	7.82
Total Fixed Cost (₦)			10,640.37	41.02
Variable cost items	Quantity	Unit cost	Total	
Cassava stems (bundles)	9	200.00	1,800.00	6.94
Transport		1,000.00	1,000.00	3.85
Storage		0.00	0.00	0.00
Agrochemicals	3	1,500.00	4,500.00	17.35
Labour	4	2,000.00	8,000.00	30.84
Total Variable Cost			15,300.00	58.98
Total Costs			25,940.37	100.00
Returns	Quantity	Unit price	Total	
Cassava sold (50 kg bags)	20	2,000.00	40,000.00	
Gross margin				
Net margin				

BCR	1.54			
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Constraints faced by Cassava Producers.=

Table 6 shows that the major constraints associated with the problem and prospect in cassava production in the study area were land tenure which had a mean value of 3.65 from the 4 point Likert type scale, lack of social capital was also a major constraint with a mean value of 2.50, high energy cost 2.60, high input cost/high raw material cost 2.94, fluctuation in market

price 2.35, high transportation cost 3.21, poor infrastructure 2.91, non-mechanized cassava production harvesting, processing and preservation 3.39, perishability 2.91, high cost of transportation 2.20, price fluctuation (seasonality), inadequate capital 3.13, storage problem 2.95 poor marketing information 3.39 and low demand 2.46. These confirms Akinnagbe, (2010) opinion of the constraints faced by cassava farmers.

Table 6: Constraints faced by Cassava Producers

Constraints	SA	A	U D	D A	S A	Su m	Mea n
Land tenure	34	12	15	10	9	292	3.65
Lack of social capital	9	10	12	31	18	201	2.51
High energy costs	3	23	13	21	20	208	2.60
High inputs costs/ high raw material costs	9	24	12	23	12	235	2.94
Fluctuation in market prices	8	10	2	42	18	188	2.35
High transportation costs	12	29	15	12	12	257	3.21
Poor infrastructures	12	15	14	32	7	233	2.91
Non-mechanized cassava production, harvesting, processing and preservation	20	30	3	15	12	271	3.39
Perishability	12	15	14	32	7	233	2.91
High cost of transportation	5	10	2	42	21	176	2.20
Price fluctuation (seasonality)	12	19	24	15	10	248	3.10
Inadequate capital	11	27	15	15	12	250	3.13
Storage problem	12	15	14	32	7	233	2.91
Poor marketing information	20	30	3	15	12	271	3.39
Low demand	7	11	12	32	18	197	2.46

CONCLUSION

This study analyzed the challenges and prospects of cassava production in Ogbia Local Government Area. Using a two-stage sampling technique, eight communities were selected, and 10 cassava farmers were chosen from each, giving a sample of 80 farmers. The results showed that 60% of cassava farmers were male; 80% were aged 31–50; 85% were married; and 62.5% had household sizes of 1–5. Illiteracy was high, with 56.25% having no formal education. Cassava production was profitable: gross margin analysis showed an average profit of ₦24,700. Farmers faced multiple challenges, but still viewed cassava production as prospectively favorable. They saw cassava as easy to cultivate and suited to the area's climate. It also provided rural employment, had a broad market for by-products, high-yielding varieties, a large domestic market, and suitable land. In contrast, farmers did not consider government policies favorable toward cassava production, nor did they believe adequate research was being conducted to improve production. Overall, cassava production in Ogbia is profitable and promising despite constraints. Improved government policy, research, and support for farmers could further enhance productivity and returns.

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