

PROFITABILITY OF CASSAVA PRODUCTION AMONGST CASSAVA FARMERS IN OYO STATE, NIGERIA

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Abstract

The study investigated Profitability of Cassava production in Oyo State, Nigeria. Cassava is an important crop in Nigeria because of its comparative production advantage over other crops. Interview schedule was used to select 120 respondents for the study. Mean age of the respondents was 38 years. The distribution of the respondents based on their belief (religion) showed that most (62.5 percent) were muslims. Majority (90.8 percent) of the respondents were married. Majority of the respondents (95.8%) had primary education and above with mean household size estimated at 7. Majority (90.8%) engaged in mixed cropping. Gross Margin and Net Farm Income were ₦312,969.86 and ₦308,189.08 per hectare respectively while the Profitability Index was 1.29. Climate change (WMS = 2.37), poor road network (WMS = 2.32), scarcity of planting material (WMS = 2.09) and pests and diseases (WMS = 2.07), were the extremely severe problem facing the respondents. Pearson Correlation analysis revealed that age ($r = 0.302$, $p < 0.05$), household size ($r = 0.512$, $p < 0.05$) and farming experience ($r = 0.221$, $p < 0.05$) had a significant relationship with profitability of cassava production in the study area. The study concluded that cassava production was profitable in the study area. It was recommended that workshop, seminars and periodic training should be organized for the cassava farmers to expose them to level of operations that could enhance and improve their profitability.

Keyword: Profitability; Cassava Production; Cassava farmers; Constraints

Introduction

Cassava (*Manihot esculenta*) is a popular food crop and its popularity cannot be disputed in many countries including Thailand, Brazil, India and several West African countries. It is a staple crop that is mostly grown in many tropical countries of Africa, Asia and Latin America (Ohadike, 2007). Cassava is very tolerant and has the ability to grow on marginal land where other food crops cannot grow well but for its high yield and productivity, moderate climatic condition and best soil properties like a light, sandy loam soil of medium fertility and good aerations or drainage are all crucial (Akanbi *et al.*, 2004; Cock, 2012). In Nigeria, other benefits of cassava come in the areas of delivering food security, employment, raw materials, foreign exchange and boosting of national income growth. In addition to the traditional food, it is a reliable food security for farming households in the tropics (Ikeumonisan *et al.*, 2020). Cassava can produce the nationally required food security if further encouraged. Cassava is a rich, cheap and reliable source of food for more than 700 million people in developing world (FAO, 2003). It has been estimated that about 250 million people in the Sub Saharan Africa derive half of their daily calories from cassava (FAO, 2005).

According to IITA (2001), cassava provides daily source of energy in Africa and are processed into wide variety of granules, pastes, flours or consumed freshly boiled or raw. In most of the cassava growing countries in Africa, the leaves are also consumed as a green vegetable, which provides vitamin A and B. Cassava can be used to improve rural and urban income and development in Nigeria if given adequate attention. However, Daud *et al.* (2015) calculated the benefit-cost ratio of cassava production in his study as 1.7 and concluded that cassava production was highly profitable. In view of the above and despite the cultivation of cassava by most farmers in the study area, they are still living in abject poverty. This calls for investigation with a view to ascertain profitability of cassava production. Hence, the rationale behind the study.

Research Questions

- I. What are the socio-economic characteristics of cassava farmers in the study area?
- II. What types of cropping systems are practiced by the cassava farmers in the study area?
- III. How profitable is cassava production in the study area?

- IV. What are the constraints faced by the cassava farmers in their production activities in the study area?

Objectives of the Study

The general objective of the study was to analyse the profitability of cassava production amongst farmers in Oyo State.

The specific objectives were to:

- I. describe the socio-economic characteristics of cassava farmers in the study area.
- II. identify the type of cropping system practiced by the cassava farmers in the study area.
- III. determine the profitability of cassava production in the study area.
- IV. identify constraints faced by the cassava farmers in their production activities in the study area.

Ho 1: Research Hypothesis

There is no significant relationship between some selected socio-economic characteristics of cassava farmers and profitability of cassava production in the study area.

Methodology

Study Area

The study was carried out in Oyo State. It is a State in South-Western Nigeria with its capital at Ibadan. It is bounded in the North by Kwara State, in the East by Osun State, in the South by Ogun State and in the West partly by Ogun State and partly by the Republic of Benin. Some principal rivers such as Ogun, Oba, Oyan, Otin, Ofiki, Sasa, Oni, Erinle and Osun rivers were in the area. Agriculture is the main occupation of the people of Oyo State. The climate in the State favours the cultivation of crops like maize, yam, cassava, millet, rice, plantains, cocoa, palm produce, cashew etc. There are also vast cattle ranches at Saki, Fasola, a dairy farm at Monatan in Ibadan and the Oyo State Agricultural Development Programme with headquarters at Saki.

Population of the Study

Population of the study comprised all cassava farmers in Oyo State.

Method of Data Collection

Primary data was collected from the selected cassava farmers in the study area using interview schedule. Secondary data was also used for the study.

Sampling Procedure and Sample Size

Multi-stage sampling technique was used in selecting respondents for this study.

1st stage: Oyo State was divided into four (4) Zones by Agricultural Development Programmes (ADP) zoning system, namely, Ibadan/Ibarapa, Oyo, Ogbomoso and Saki Zones.

2nd stage: Local Governments (LGs) in each of the zones were identified and listed.

3rd stage: Ibarapa North LG, Ibarapa East LG, Ibarapa Central LG, Iseyin LG, Oyo East LG and Atiba LG were purposely selected for the study because of predominant number of farmers cultivating cassava in those areas.

4th stage: Six registered Cassava Growers Associations of Nigeria were identified and selected in each of the local governments aforementioned in stage 3.

5th stage: Based on membership strength of each association, 10% of the registered farmers were randomly selected in each Local Government's association to arrive at 120 respondents as thus: 25, 15, 18, 17, 21, and 24 respondents from Ibarapa North LG (248 members), Ibarapa East LG (152 members), Iseyin LG (184 members), Ibarapa Central LG (175 members), Oyo East LG (205 members) and Atiba LG (236 members) were respectively selected.

Data Analysis

To actualize the objectives, descriptive and inferential statistics were used in analysing the data. These include mean, frequency distribution, percentages, chi-square and PPMC. Also Gross Margin (GM) analysis was used to calculate profitability of cassava production in the study area.

Results and discussion

Socio-economic characteristics of cassava farmers

The socioeconomic characteristics of the respondents presented in Table 1 showed the mean age of the respondents 38 years. This revealed that majority of the respondents were in productive age. This fell in line with the finding of Olise (2010) that young people nowadays, participate more in agriculture. The distribution of the respondents based on their belief (religion) showed that most (62.5 percent) were Muslims while 25.8 percent and 11.7 percent of the respondents were Christians and traditional worshippers respectively. In terms of their marital status, majority (90.8 percent) of the respondents were married while 5.8 percent, 0.9 percent and 2.5 percent of them were single, divorced/separated and widowed respectively. Majority of the respondents (95.8%) had primary education and above which might be an



indication to farmers efficiency in agriculture. Similar opinion of Ramli *et al.* (2013) in their findings was that educational level enhances efficiency of farmers.

The mean household size was estimated at 7 while average farm size cultivated was 8.3 hectares.

Table 1: Socioeconomic characteristics of Cassava Farmers in the study area

Variables	Frequency	Percentage	Mean
Age (Years)			
Less than 30 years	4	3.3	38
30-39 years	40	33.3	
40-49 years	37	30.8	
50-59 years	29	24.2	
60 years & above	10	8.4	
Religion			
Christianity	31	25.8	38
Islam	75	62.5	
Traditional	14	11.7	
Marital Status			
Single	7	5.8	38
Married	109	90.8	
Divorced / Separated	1	0.9	
Widow	3	2.5	
Sex			
Male	71	59.2	38
Female	49	40.8	
Educational Qualification			
No Formal Education	5	4.2	38
Primary Education	31	25.8	
Secondary Education	65	54.2	
Tertiary Education	19	15.8	
Farming Experience (Years)			
Less than 5	20	16.7	38
5-10	28	23.3	
11-15	22	18.4	
Above 15	50	41.6	
Farm Size (Hectares)			
Less than 5	28	23.3	8.3
5-10	65	54.2	
Above 10	27	22.5	
Household Size			
Less than 4	20	16.7	7
4-8	75	62.5	
Above 8	25	20.8	

Source: Field Survey, 2021

Cropping System Practiced by Cassava Farmers

The results in Table 2 highlighted some of the cropping system practiced by cassava farmers in the study area. Majority (90.8%) claimed to practice mixed cropping while 8.2 percent of them did not engage in mixed cropping. Furthermore, the distribution of the respondents based on other forms of cropping system practiced during cassava propagation revealed that 65.0 percent, 55.0 percent, 67.5 percent, 66.3 percent, 64.2 percent and 66.7

percent of the respondents practised sole cropping, crop rotation, sequential cropping, intercropping, stir cropping and row intercropping respectively in the study area. Majority of them (90.8%) who practised mixed cropping might be due to profit maximisation, guarding against unforeseen circumstance and ensuring of food security. If cassava farming could be well managed, food security may be guaranteed in Nigeria. This corroborates Ikeumonisan *et al.*, (2020) that in addition to the traditional food, cassava is a



reliable food security for farming households in the tropics and that it can produce the nationally required food security if further encouraged.

Table 2: Cropping System practiced by Cassava farmers (n = 120)

Cropping System Practiced*	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Mixed Cropping	109	90.8	11	8.2
Sole Cropping	78	65.0	42	35.0
Crop Rotation	66	55.0	54	45.0
Sequential Cropping	81	67.5	39	32.5
Intercropping	76	66.3	44	33.7
Stir Cropping	77	64.2	43	35.8
Row Intercropping	80	66.7	40	33.3

Source: Field Survey, 2021

*Multiple response

Profitability of Cassava Production

Profitability of cassava production in the study area was presented in Table 3. The results showed that Total Variable Cost was estimated at ₦242,710.04 per hectare, 10% depreciation rate was calculated on the equipment used making the Total Fixed Cost to be ₦4,780.78 per hectare while the Total Cost was ₦247,490.82 per hectare. Total Revenue generated from sale of cassava, Gross Margin and Net Farm Income were ₦555,679.90 per hectare, ₦312,969.86 and ₦308,189.08 per hectare respectively while the Profitability Index was 1.29. Furthermore, Profitability Index (PI) of above 1 for any investment

or project denoted that the project is considered profitable and should be accepted. This implies that cassava production is profitable in the study area because of PI is above 1 (1.29). This is similar to the finding of Daud *et al.* (2015) who calculated the benefit-cost ratio of cassava production in his study as 1.7 and concluded that cassava production was highly profitable. It could be deduced from this study that there is high probability of increase in production level of cassava in the study area as more people would engaged in cassava production due to its high profitability.

Table 3: Profitability of Cassava Production per hectare of Land

Items of Cost	Total Cost (₦)
a. Variable Cost	
Cost of Land preparation	90,789.00
Cost of rent on land	15,673.65
Cost of cassava stem per hectare	12,569.67
Cost of Labour for planting	2,789.41
Cost of fertilizer per hectare	36,805.80
Cost of herbicide per hectare	22,350.90
Cost of other Agrochemicals	18,890.10
Cost of weeding per hectare	13,107.17
Harvesting cost	15,279.03
Transportation cost	13,455.31
Total Variable Cost	242,710.04
b. Fixed Cost	
10% Depreciation rate on equipment	4,780.78
Total Fixed Cost	4,780.78
Total Cost (A + B)	247,490.82
c. Revenue from sale of cassava	555,679.90
Gross Margin = TR – TVC	312,969.86
Net Farm Income (NFI) = TR – TC	308,189.08
Profitability Index = NFI / TVC	1.29

Source: Field Survey, 2021

TVC = Addition of all costs spent on cassava production
TFC = All costs incurred in all the fixed equipments on the farm
Revenue = Sales/amount realized from cassava production
NFI = Profit realized from cassava production

Constraints to Cassava Farmers in the study area

Table 4 revealed constraints to cassava production in the study area. It was observed that climate change (WMS = 2.37), poor road network (WMS = 2.32), scarcity of planting material (WMS = 2.09) and pests and diseases (WMS = 2.07) were the extreme

problems challenging cassava production in the study area. The findings is in consonance with IITA (2001) that there are some constraints to cassava production in Africa especially in Nigeria and some of them are pest related, diseases related while others emanated from other sources.

Table 4: Distribution of Respondents according to Constraints faced in Cassava Production

Constraint	Extremely Severe	Severe	Less Severe	WMS
Climate Change	13(10.8)	13(10.8)	76(63.3)	2.37
Pests and diseases	56(46.7)	16(13.3)	48(40.0)	2.07
Scarcity of Planting Materials	57(47.5)	17(14.2)	46(38.3)	2.09
Inadequate Information on Cassava Production	45(37.5)	20(16.7)	55(45.8)	1.91
Inadequate Fund	25(20.8)	60(50.0)	35(29.2)	1.92
Poor Road Network	72(60.0)	15(12.5)	33(27.5)	2.32

Source: Field Survey, 2021

Percentages are in Parentheses

Test of Hypothesis

There is no significant relationship between selected socio-economic characteristics of the farmers and profitability of cassava production in the study area

In Table 5, Pearson Correlation analysis revealed that age ($r = 0.302$, $p < 0.05$), household size ($r = 0.512$, $p < 0.05$) and farming experience ($r = 0.221$, $p < 0.05$)

had significant relationship with profitability of cassava production in the study area. This implies that the age of the household age, household size and farming experience exert a positive significant influence on profitability of cassava production in the study area. That is, the higher these variables are, the more the profitability of cassava production in the study area.

Table 5: Summary of Pearson Correlation analysis showing Relationship between selected socioeconomic characteristics of the respondents and Profitability of cassava production (N = 120)

Socio-economic characteristics	r-value	p-value	Remark
Age	0.302	0.020	S
Household Size	0.512	0.012	S
Farming Experience	0.221	0.010	S

Source: Field Survey, 2021

S = significant; NS = not significant

Summary of Chi-square test establishing relationship between selected socioeconomic characteristics of the respondents and Profitability of cassava production.

The results of chi-square test in Table 6 showed the significant relationship between selected socio-economic characteristics of respondents and

profitability of cassava production in the study area. The results showed that there was no significant relationship between sex ($X^2 = 17.07$, $p > 0.05$) and profitability of cassava farming in the study area. This implies that the profitability of cassava production in the study area was irrespective of sex, marital status or religion of the household head.

Table 6: Summary of Chi-square test establishing relationship between selected socio-economic characteristics of the respondents and Profitability of cassava production (N=120)

Socioeconomic characteristics	X^2 value	Df	p-value	Remark
Sex	41.01	21	0.25	NS
Marital status	31.11	20	0.15	NS
Religion	17.07	18	0.25	NS

Source: Field Survey, 2021

Significance level: $p < 0.05$

Conclusion

The study concluded that cassava production was profitable in the study area with profitability index of 1.29 and the major constraints to cassava production were climate change, poor road network, scarcity of planting material and inadequate fund.

Recommendations

1. Extension agents should collaborate with research institutes with a view to assist farmers in sourcing for the best planting materials and varieties that will give profitable yield.
2. Extension agents should encourage cassava farmers to pool resources together through functional cooperative societies.
3. Government should provide good road network for the cassava farmers, so as to be able to reach markets easily.
4. Workshop, seminars and periodic training should be organized for the cassava farmers to enhance their level of operation and boosting of profit to be generated.

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