

COST AND BENEFIT ANALYSIS OF CASSAVA PRODUCTION IN IVO LOCAL GOVERNMENT AREA OF EBONYI STATE, NIGERIA.

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ABSTRACT

Cassava is one of the important and extensively grown food crops in Nigeria and is the staple food for more than half of the African population. The scope for expanding cassava production lies in enhancing productivity. This study analyzed the costs and benefits of cassava production in Ivo Local Government Area of Ebonyi State, Nigeria. A sample of two hundred (200) farmers were purposively selected from Ishiagu, Akaeze, Ihenta, Okue and Ngwogwo towns that were randomly selected for the study. Primary data were collected using structured questionnaire and analyzed using descriptive statistics, enterprise budgeting and gross margin analysis. Results of analysed data showed that majority (62.0%) of the respondents fell between the age range of (31-40) years while (81.5%) and (82.0%) of them were males and married respectively. Greater number of the respondents (48.5%) maintained large family size of between (16 to 20) people while about (48.0%) of the respondents had cassava farm size of between (1 to 2) hectares, indicating small scale production level. It was also established that majority of the respondents (52.0%) had no access to formal credit. The result of the gross margin analysis revealed that the respondents on average spent ₦139,900.00 as total production cost and realized output of 13,200kg of cassava root; amounting to a corresponding net farm income of ₦282,500 per hectare of cassava farm in the study area. The results showed a benefit to cost ratio of 3.02 which indicates that the farms earns a profit of ₦3.02 for each ₦1.00 invested in cassava production enterprise. This shows that cassava production is a lucrative enterprise in the study area. The study therefore, recommends that government should assist the farmers in the provision of farm input, credit and rural infrastructure to enhance intensive cassava production using improved varieties with minimal land and manual labour.

Key words: Cost, Benefits, Cassava, Production, Ivo.

INTRODUCTION

The emergence of this global pandemic called COVID-19 is gradually pushing the Nigerian economy into its brink. Thus, the new economic imperatives demand much more from the agricultural sector. Being a mono-economy with her crude oil as the major source of revenue, the country has been impacted by the serial shocks in the global oil sector. There are concerns that further shocks in the future may worsen the whole economy architecture

including agriculture if appropriate measures are not promptly taken. One of the lowest hanging fruits is to reposition the agricultural sector by putting in place insightful reforms that can enhance ease of doing agribusiness. This is predicated on the fact that a revitalized agribusiness sub-sector can transform the economy of Nigeria. Despite all these, cassava production, being an important food crop among Nigerians, remains a possible and reliable alternative to confront this impending hunger; and subtle means for sustaining the rural economy while the macro-economy heals back gradually (Edamisan, Taiwo, Igbekele & Kemisola; 2020)

According to Ibirogba (2020), cassava is currently the fourth most important food crop in the world, followed closely by maize, wheat and rice. It is cultivated on over 24 million hectares in 105 countries in the world. Of the countries, Nigeria ranks the largest producer. Though Nigeria is the largest producer of the root crop, its low average yield per hectare of about 7.7 metric tonnes compared with 23.4 metric tonnes and 22.2 metrics in Indonesia and Thailand, respectively, is still a source of worry to cassava breeders, agronomists and food scientists. With huge production potential and competitive advantage in cultivation, experts believe the country can grow and diversify the economy through industrialisation of the cassava roots to produce raw materials being imported by the ancillary industry users.

Cassava (*Manihot* spp.) is believed to have originated from Northern Brazil. The popular crop is grown in almost every tropical country. In Nigeria, it was introduced in the then Bendel state by the Portuguese explorers in the 16th – 17th Century. Since then, it has been accepted as one of the main staple crops. The cassava plant is a perennial woody shrub that grows from about 1-3 meters in height. The leaves palmate and are dark green in colour. The cone-shaped roots are starch storage organ. Over five thousand varieties are known each of which has its own distinctive characteristics and is adapted to different agronomic practices and environmental conditions. The most preferred precipitation for cassava plant is an annual rainfall of 1000 mm or more. It thus implies that an average of 50mm rainfall per month spreading over a period of 6 months can sufficiently meet the water need of cassava plant. According to International Institute of Tropical Agriculture (IITA) (2017), cultivating cassava comes with a lot of convenience. Some of which include: its ability to do well in poor soils, its low labour requirements, can be inter-

cropped with other crops, and matures within a period of 6 months–3 years after planting.

The demand for cassava roots and products are high and fast rising. However, the current food production is far from being able to meet the food needs of the geometrically growing population in the sub-region (FAO, 2018). Nigeria currently holds the record of the largest producer of cassava in the world, but the trend in yield performance (production per hectare) remains low. This low yield may be linked to ineffective agronomic practices and inefficient management of production resources. This has largely contributed to poor performance of the agricultural sector in terms of efficient use of productive resources (Tadele and Assefa, 2012). In view of the forgoing, Juma (2015) advocated innovative approach to agriculture and food production. This is a way to avoid waste of productive resources: land and protect the environment while exploring the soil for sufficient food production with a view to ultimately achieving zero hunger.

This paper attempted to find out the costs and benefits of cassava production in Ivo local government area of Ebonyi state. Specifically, it described the socio-economic characteristics of cassava farmers in Ivo local government area; and determined the costs and benefits of cassava production in the study area.

METHODOLOGY

Study Area

This study was conducted in Ivo local government area of Ebonyi state; with its administrative headquarters located at Isiaka. The local government is bounded to the north by Nkanu-east local government area of Enugu state and Ohaozara local government area and to the east by Afikpo-south local government area and to the south and west by Abia state. Ivo local government area is made up of the following major towns: Akaeze, Ishiagu, Ukwu, Amagu, Amony, Ihenta, Ogidi, Iyioji, Ndiokoro, Ngwogwo, Obinagu, Okue, Umobo, and Agbaja Anyanwuigwe. Ivo local government area is home to Federal College of Agriculture Ishiagu (NPC, 2006). The people are mostly farmers, fishermen, traders and civil servants. The local government area is blessed with abundant and fertile farmland. The major source of livelihood in this area is agriculture and the bulk of agricultural production is undertaken by smallholder farmers. Major crops grown in the area include rice, cassava, yam, maize, potatoes and vegetables among other crops.

Sampling procedure, data collection and analysis

A multi stage sampling technique was employed. The first stage involved the random selection of five towns out of the fourteen major towns in the area. The selected towns are Ishiagu, Akaeze, Ihenta, Okue and Ngwogwo. In the second stage, forty cassava farmers were randomly selected from each of

the five selected towns to obtain a sample size of two hundred (200) cassava farmers for the study. Primary data were collected based on 2020 cropping season using detailed structured questionnaires. Data collection was based on socio-economic characteristics of respondents; farm production information as well as prices of input and output in the study area. Descriptive statistical tools and farm enterprise budgeting as well as gross margin analysis were employed for data analysis. The analytical framework for the farm enterprise budgeting is stated as:

$$TC = TVC + TFC \dots\dots\dots(1)$$

$$GM = TR - TVC \dots\dots\dots(2)$$

$$NFI = TR - TC \dots\dots\dots(3)$$

$$BCR \text{ Benefit} = TR / TC \dots\dots\dots(4)$$

Where: TC = total cost

GM = gross margin

NFI = net farm income

BCR = benefit to cost ratio

RESULTS AND DISCUSSION

Socio-Economic Characteristics of the Respondents

Farmers' participation in farm production activities is greatly influenced by age. Thus, younger farmers are more active in farm production activities. Figures in table i. show that, majority of the respondents (62.0%) are between the age range of (31-40) years. This implies that, the farmers are still in their active working age and can participate adequately in cassava production activities. The distribution of respondents by gender is also shown in table 1. Figures therein indicated that (81.5%) of the respondents were male. This suggests that males dominate the farm production system in the study area. This observation could be attributed to the fact that women are mostly involved in cassava processing activities and their dependence on men in the ownership of farmlands.

Figures in table i. further show that majority of the respondents (82.0%) were married. This indicates a possibility of easy and cheap source of labour for cassava farming activities in the study area. The percentage distribution of the household size of the respondent as shown in table 1 below reveals that majority of the respondents (48.5%) fell within the modal household size of between (16 to 20) people. This ensures adequate supply of family labour to the respective farm households.

The results of the distribution of respondents by farm size showed that majority (48.0%) of cassava farmers had farm sizes of between 1 and 2 hectares. This implies that cassava farmers in the study were still very far from commercialization agriculture. Figures in table i. below showed that majority (52.0%) of the respondent have no access to formal credit. The results further revealed that even among those that received formal credit, greater percentage of them (29.0 %) received a loan of less between (N100,000.00 to N200,000.00) only; This means

that majority of the respondents depend either on informal means of lending or their personal savings to finance their cassava farm business.

Table i: Socio-economic features of respondents

S/No.	Variable	Frequency	Percentage (%)
1.	Age(years):		
	21 to 30	3	1.5
	31 to 40	124	62.0
	41 to 50	40	20.0
	above 50	33	16.5
2.	Sex:		
	Male	163	81.5
	Female	37	18.5
3.	Marital status:		
	Single	2	1.0
	Married	164	82.0
	Widowed	23	11.5
	Divorced	11	5.5
4.	Household size:		
	1 to 5	0	0.0
	6 to 10	6	3.0
	11 to 15	43	21.5
	16 to 20	97	48.5
	Above 20	54	27.0
5.	Farm size (hectare):		
	1 to 2	96	48.0
	3 to 4	58	29.0
	5 to 6	34	17.0
	above 6	12	6.0
6.	Access to credit(Amount):		
	No access to formal credit	104	52.0
	100,000 to 200,000	58	29.0
	300,000 to 400,000	38	19.0
	500,000 to 600,000	0	0.0
	Above 600,000	0	0.0

Source: Field survey, 2020.

Cost and Returns Analysis Per Hectare of Cassava Farm

Table ii shows the enterprise budget per hectare of cassava farm in the study area. It shows that the respondents spent the sum of ₦139,900.00 on total variable cost and ₦25,000.00 on fixed cost per hectare of cassava farm. The average quantity of output (kg of cassava rooted) obtained is estimated at 13,200kg per hectare. This output was sold at ₦32.00 per kg to realize the sum of ₦422,400.00 as total revenue per hectare of cassava farm. By simple

computation, deducting the total cost from the total revenue showed that the respondents obtained net farm income of about ₦282,500.00 per hectare of cassava farm in the study area. The benefit to cost ratio of the enterprise is calculated at 3:1. This implies that on every naira spent in the production of cassava, the respondents realized ₦3.02 in return for the naira expended per hectare of cassava farm. Thus, cassava production is a profitable venture in Ivo local government area of Ebonyi state, Nigeria.

Table 2: Enterprise Budget for One Hectare of Cassava Farm in Ivo L.G.A

S/N	Items	Unit	Quantity	Unit Price (₦)	Total Amount (₦)
1.	Revenue:				
	a. Cassava stem	Bundle	-	-	-
	b. Cassava roots	Kg	13,200	32	422,400
	Total Revenue (TR)	-	-	-	422,400
2.	Variable Cost:				
	a. Cassava stem	Bundle	20	500	10,000
	b. Fertilizer	Kg	50 X 6	5000	30,000
	c. Herbicides	Litres	15	1,500	22,500
	d. Pesticides	Litres	-	-	-
	e. Labour (hoeing)	Mandays	22	1700	37,400
	f. Labour (clearing)	Mandays	15	1000	15,000
	g. Other expenses	-	-	-	-
	Total Variable Cost (TVC)	-	-	-	114,900
3.	Fixed Cost:				
	a. Land rent	Ha.	-	25,000	25,000
	b. Depreciation	-	-	-	-
	c. Total Fixed Cost (TFC)	-	-	-	25,000
4.	Total Cost (TC)	-	-	-	139,900
5.	Gross margin	-	-	-	307,500
6.	Net Farm Income	-	-	-	282,500
7.	Benefit to Cost Ratio	-	-	-	3.02

Source: Field Survey, 2020.

CONCLUSION AND RECOMMENDATIONS

The study analyzed the cost and benefits of cassava production in Ivo local government area of Ebonyi state. Multi-stage sampling technique was employed in the selection of two hundred (200) respondents for this study. Primary data were collected from respondents using structured questionnaire. Data were analyzed using descriptive statistics, enterprise budgeting and gross margin analysis. Results of analysed data showed that majority (62.0%) of the respondents fell between the age range of (31-40) years while (81.5%) and (82.0%) of them were males and married respectively. Greater number of the respondents (48.5%) maintained large family size of between (16 to 20) people while about (48.0%) of the respondents had cassava farm size of between 1 to 2 hectares, indicating small scale production level. It was also established that majority of the respondents (52.0%) had no access to formal credit. The result of the gross margin analysis revealed that the respondents on average spent ₦139,900.00 as total production cost and realized output of 13,200kg of cassava root; amounting to a corresponding net farm income of ₦282,500.00 per hectare of cassava farm in the study area with a benefit to cost ratio of 3:02. This shows that cassava production is lucrative enterprise in the study area. The study therefore, recommends that government should assist the farmers in the provision of farm input, credit and rural infrastructure to enhance intensive cassava production using improved varieties with minimal land and manual labour.

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