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Profitability Analysis of Cassava Production In Wamba Local Government Area of Nasarawa State, Nigeria

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Abstract

This study analyzed the profitability of cassava production in Wamba Local Government Area of Nasarawa State. Primary data were collected with the aid of well-structured questionnaire and interview schedule. Data were analyzed using descriptive statistics and gross margin analysis. The results revealed that labour cost ranked first among the variable which accounted for ₦10, 148.0, followed by Herbicide which cost ₦4,735.0. The results also showed that major constraints faced by cassava producers are lack of improved varieties, high cost of inputs, poor transportation system and lack of capital respectively. Policy that would help to cut down the cost of production inputs, make credit and production resources available and affordable for farmers, would go a long way in enhancing its profitability and consequently expanding cassava production.

Keywords: Profitability analysis, cassava production, Nasarawa State, Profit maximization and Net farm income

Introduction

Cassava (*Manihot esculenta*) believed to have originated from Brazil and introduced into West Africa by the Portuguese. Considered the most productive crop in the Tropics, apart from its high productivity and content, it has other relevant advantages such as being 'season bound' and its ability to store well in the soil for several months. This is why cassava is been called the famine security crop (Alabi and Oviasagie, 2005).

In Nigeria cassava has assumed a prominent role as one of the major staple food not only among the rural peoples, but also among a lot of urban dwellers. As a result of the high demand generated from the major product (gari) cassava now forms major items in the crop combination of the farmers (Pinstrup, 2001).

According to Alabi and Oviasagie (2002). The relatively low requirement of labour makes it a particularly attractive crop for nation in search of food security for their people, cassava is also a single greatest source of food energy in Nigeria.

Profit maximization is one of the important goals of farm firms. An estimate of the profitability of every farm enterprise is always based on cost-return analysis. This

involves itemizing the costs and returns of production variables and using them for achieving the estimates as the return to one unit of resources used, the gross margin as well as the net farm income, profit is generally defined as the difference between total revenue and total cost (Olukosi and Erhabour, 1989). The objective of Nigeria's food security programme of increasing agricultural production for food self-sufficiency is still far from being realized (Agbaje *et al.*, 2005). The major problems associated with costs and returns analysis as basis for profitability assessment according to Bernard (2003) are:-

- i. It does not indicate the relative importance of each of the resources in production
- ii. It is location bound and specific in applicability due to use of money as the common unit of measurement and the prevailing price of the estimates.

Despite the limitations, costs and returns analysis has been used in a research studies. For instance, Iheanacho (2000) employed cost-returns analysis in estimating production costs and returns for millet based cropping systems in Borno state of Nigeria. The objectives of this study were to: describe the socio-economic characteristics of respondents, estimate the costs and returns and identify the constraints that faced the cassava farmers in the study area

Methodology

This study was conducted in Wamba Local Government area of Nasarawa state, Nigeria. The state lies between latitudes, 7° and 9° 45¹N of the equator and longitudes 7° and 9°32¹E Greenwich meridian. It shares common boundaries with Bokkos Local Government Area of Plateau State to the East, Akwanga Local Government of Nasarawa State to the West, Sanga Local Government Area of Kaduna State to the North and Nasarawa Eggon Local Government Area of Nasarawa State to the South (Binbol and Marcus, 2005), majority of the indigenes of the area are farmers and some engage in petty trading, Wamba Local Government Area consists of eight districts. Four districts where cassava is highly produced are Arum, Wuda, Jimiya and Gitta as such these districts were purposely selected and twenty cassava producing households heads were selected at random from the four districts giving the total number of 80 sampled cassava farmers. Data were collected using well-structured questionnaire and interview schedules between January and April 2013. Information collected include socio-economic characteristics of farmers such as age, gender, educational level, marital status, household size, access to credit, extension contact, costs and returns and constraints faced by cassava farmers in the study area. Data were analyzed using descriptive statistics and gross margin analysis.

- (a) Gross margin: This is the difference between the gross farm income (GFI) and the total variable cost (TVC) Algebraically, $GM = GFI - TVC$

Where GM = Gross margin, GFI = Gross farm income

TVC = total variable cost

(b) Net farm income: It is the difference between the gross margin (GM) and total fixed cost (TFC)

Notationally,

$NFI = GM - TFC$

Where NFI = Net farm income TFC – Total fixed cost and GM is as previously defined.

Results and Discussion

Socio-economic Characteristics of Farmers

The socio-economic characteristics of the cassava producers considered include age, gender, marital status, educational level, access to credit and extension contact. The results of the analysis are presented in Table 1. The majority (85.5%) of the respondents were within the age bracket of 20 – 50 years with only 13% of them with age above 50 years. The age distribution implies that vast majority of farmers in the study area were in their active years. The males constitute up to 80% among the respondents while the female cassava producers were 20% and the married among them were 82.5%. Indicated that men dominate the workforce in cassava production but women play important functions (Adedoyin and Fapojo, 2007). Furthermore, 96% of respondents had one form of educational attainment or the other. Education is a vital human capital resource necessary for increasing the production, productivity and obviously the rate of adoption of modern farming system by cassava producers among others. This study agreed with Tologbose (2004) who stated that education affects the rate at which new technologies are being diffused and accepted by the farmers.

Results further revealed that, majority (65%) of the respondents acquired land by inheritance, 16% acquired land by borrowing and 15% by hiring. Only 4% acquired land by purchasing. This implies that cassava producers will face land fragmentation and lead to increase in profit inefficiency.

Farm size ranged from 0.1 – 3 hectares out of which 96% of the respondents had farm land not more than 0.1 – 2 hectares. Land holdings of small scale producers which acquired land by inheritance (65%), borrowing (16%), hiring (15%) and purchase (4%) are typically small. Most of the cassava producers (85%) did not have access to extension service. Only 15% of respondents had access to extension agent. This is an indication that majority of cassava farmers in the study area did not have access to recent technologies. This can greatly affect the profitability level of the cassava producers. Results further shows that inaccessibility of respondents to credit was up to 95% in the study area.

Table 1: Socio-economic characteristics of cassava farmers in the study area

Variables	Frequency	Percentage (%)
Age		
20 – 50	70	87.5
>50	10	12.5
Total	80	100
Gender		
Male	64	80
Female	16	20
Total	80	100
Marital status		
Married	66	82.5
Single	14	17.5
Total	80	100
Educational level		
Quaranic	5	6.3
Primary	4	5
Secondary	33	41.3
Tertiary	35	43.7
None above	3	3.7
Total	80	100
Land acquization		
Inheritance	52	65
Borrowing	13	16
Hiring	12	15
Purchasing	3	4
Total		100
Farm size (ha)		
0.1 – 2	77	96
2.1 – 3	3	4
Total	80	100
Extension contact		
Yes	12	15
No	68	85
Total	80	100
Access to credit		
Yes	4	5
No	76	95
Total	80	100

Source: Field Survey Data, 2013

Costs and Returns

The profitability of cassava production enterprise was examined using costs and returns analysis. The estimated costs and returns of small scale cassava farms in the study area are presented in table 2.

The gross return realized by small scale cassava producers was ₦52, 285.8 per hectare. The total variable cost in cassava production was ₦21, 849.6 per hectare of total cost of production comprising of 44.4% of labour, 7.8% transportation, 5.8% of cassava stalks, 4.1% of insecticides, 12.8% of fertilization, 20.7% of herbicides. The total fixed cost of production per hectare was ₦986.0, comprising of 1.4% of hoes and baskets respectively. Then 1.5% accounted for cutlass. The total cost of production for typical small scale cassava farmer was ₦22,825.6. The net farm, income was ₦29,449.2. The return on investment was ₦2.3 kobo. The cassava production is profitable in the study area. This implies that farmer can continue with cassava production in order to increase their source of income.

Table 2: Average costs and returns per hectare of cassava produced in the study area.

Costs and returns	Amount(₦/ha)	% of total cost
Variable cost		
Labour	10,148.0	44.4
Transportation	1,774.2	7.8
Cassava stalk	1,328.4	5.8
Insecticide	936.0	4.1
Fertilizer	2,928.0	12.8
Herbicide	4,735.0	20.7
Total	21,849.6	95.7
Fixed cost		
Hoes	320	1.4
Basket	320	1.4
Cutlass	346	1.5
Total fixed cost	986	4.3
Total cost	22,835.6	100
Gross returns	52,284.8	
Net farm income	29,449.2	
Returns on investment	2.3	

Source: Field Survey Data, 2013

Constraints faced by farmers

The major constraints encountered in cassava production in Wamba Local Government Area of Nasarawa State are a combination of lack of improved cassava varieties, poor transportation system and shortage of capital. Lack of improved cassava varieties ranking highest, followed by high cost of inputs. The study further revealed that farmers faced the problems of inadequate storage facilities, incidences of pest and diseases, poor producer's prices. Transportation cost was found to constitute large portion of profit inefficiency of cassava producers (Lale and Adu-Nyako, 1991).

Table 3: Constraints associated with cassava production in Wamba Local Government Area

Constraints	Frequency	Percentage	Rank
Lack of improved varieties	75	93.8	1
High cost of inputs	70	87.5	2
Poor transportation	60	75.0	3
Lack of capital	59	73.8	4
Inadequate storage facilities	34	67.5	5
Incidences of pest and diseases	49	61.3	6
Poor producer price	46	51.3	7
Stealing	41	51.3	8
Lack of control of inoputs	33	41.3	9
Storage of extension services	29	36.3	10
Inadequate rainfall	28	35.0	11
			1339**

Source: Field Survey Data 2013

** Refers to multiple responses

Conclusion and recommendations

The result revealed that cassava production is a profitable enterprise in the study area. The major constraints faced by the cassava producers are lack of improved varieties, high cost of inputs, and poor transportation and lack of capital. Policy that will help to cut down the cost of production inputs, more credit and production resources available and affordable for farmers would go a long way to enhancing the farmers' profitability and consequently increases cassava production.

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