



ANALYSIS OF CASSAVA PRODUCTION IN DEKINA LOCAL GOVERNMENT AREA OF KOGI STATE.

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ABSTRACT

This study examined the economic analysis of cassava production in Dekina local government area of Kogi State. A random sampling technique was used to select the respondents. A total of 12 cassava farmers were used for the study. Primary data was used for the study. Data obtained was analyzed using descriptive statistics, multiple regression, net return analysis and mean score. Results of socioeconomic characteristics of the respondents showed that majority (46.7%) of the respondents were in the age group of 41-60 years, (30%) were in the age range of 21-40 years, while (23.3%) were in the age range of 61-80 years. The mean age was 49 years. Majority (65.0%) of farmers were married, 13.3% were single, while 11.7% were divorced and 10.0% widowed. The mean year of experience in cassava production was 22 years. House hold size of most respondents ranged from 6-10 members with (53.3%), 1-5 members with (23.3%) and 11-15 members with (23.3%). The average household size was 8 members connoting large household size. The mean of annual farm income was N394, 345.39k. The result indicated an R^2 value of 0.801 meaning that 80% of the variability in the output was explained while the remaining 20% could be attributed to error term. The regression result of the effect of farmer's socio-economic characteristics on their output indicated that farming experience (0.173), household size (0.086), level of education (0.076) and farm size (0.148) were significant variables that influence the output of cassava produced in the study area. The profitability analysis of cassava production shows that cassava production requires investment of N 149,630 and the gross margin was N118, 760. Return On Capital Invested (ROCI) indicated that the farmers had ROCI of 1.79. The result revealed that the major constraints in cassava production in the study area include high cost of labour ($X=2.37$), lack of access to improved planting materials ($X=2.28$), inadequate capital ($X=2.28$), pests and diseases ($X=2.20$), inefficient or ineffective extension delivery service ($X=2.08$), poor access roads to markets ($X=2.07$). It is therefore recommended that Agricultural policy measures should be taken towards provision of ready market with stable prices for cassava produce through creation of marketing boards by the government.

Keywords: Economic analysis, Production, Profitability, Constraints, Cassava.

INTRODUCTION

Food is one of the basic needs of man but its provision is not always adequate for all nations especially in developing countries (Oyedepo, 2016). The significance of cassava in agricultural sector in Nigeria has been recognized in the area of its growth potential, industrial uses, human and animal food, economic of production and processing. It is a preferred staple food by many people in Nigeria because of its attributes. Cassava is one of the

most important food crops in the humid tropics, being particularly suited to the condition of low nutrient availability and drought in the tropical region, (Burell, 2013). There are 12 million small scale farmers in West Africa sub region out of which 8 million in Nigeria are predominantly engaged in cassava production, (Onazi, 2014).

According to International Institute for Tropical Agriculture (IITA, 2014) Kogi and Benue states are the largest producers of cassava in the North



central zone. According to the presidential initiative on cassava production (2015), Nigeria grows more cassava than any other country in the world. Its production is currently put at about 34 million metric tons in a year. Total area harvested of the crop in 2003 was 31 million hectares with an average yield of about 11 tons per hectare. The production of cassava is concentrated in the hand of numerous small holder farmers located mostly in the South and Central region of Nigeria.

According to IITA (2014), improved cassava varieties that are disease and pest resistant, low cyanide content, drought resistant, early maturing and high yielding are very important in production. However, availability of these improved varieties of planting stock has not been consistent because up to 40% of the farmers do not have access to improved planting stock (IITA 2011), these has contributed to low productivity.

Nandi *et al.* (2011) stated that Nigerians are poor and hungry despite efforts made by various governments in improving agricultural productivity and efficiency of the rural farmers who are the major stakeholders of agricultural production. Given the various government programmes such as the National Accelerated Food Production Programme (NAFP), Operation Feed the Nation (OFN), the Agricultural Development Projects (ADPs), Cassava Multiplication Programme (CMP), and Root and Tuber Crop Expansion Program (RTEP), implemented over the years to raise farmers' efficiency and productivity in cassava farming, productivity for cassava is still low. For example, the actual yield of cassava ranges between 8 and 15 tonnes per hectare, compared to a potential yield of 30 tonnes per hectare – a yield gap of 75 and 100 percent respectively (FAO, 2015). And also, given the increasing interest of more nations in buying cassava products from Nigeria, the prospects for enhanced foreign exchange is becoming high (Ogisi and Alimeke, 2013). It then becomes necessary to economically analyze the profitability and resource use efficiency of cassava farmers.

However, there is need to obtain detailed information from producers about cassava production and management practices for purpose of recommending strategies to achieve optimum level of production in the study area.

Therefore, the focus of this study is on farmers growing cassava and how to achieve optimum level of production in Dekina local government area of Kogi state.

Objectives of the study

The broad objective of the study is to examine the economic analysis of cassava production in Dekina local government area of Kogi State.

METHODOLOGY

The Study Area

The research was carried out in Dekina Local Government Area which is one of the 21 local government areas in Kogi State. It is located in the eastern part of Kogi State and lies between latitude $6^{\circ}.33'$ and $8^{\circ}.44'E$ and longitude $5^{\circ}.22'$ and $7^{\circ}.49'N$. The LGA has three districts namely: Biraidu, Dekina and Okura.

Population and Sampling Procedure

The population of this study comprised of cassava farmers in Dekina Local Government Area of Kogi State, Nigeria. A random sampling technique was used to select the respondents. All the three districts (Dekina, Biraidu, and Okura) in the L.G.A. was selected. Two (2) farming communities were randomly selected from each district, giving a total of 6 farming communities which are Abejukolo, Abocho, Agbeji, Egume, Iyale and Ochaja due to the predominance of cassava farmers in these villages. Ten (20) cassava farmers were randomly selected from each farming community. A total of 120 cassava farmers were used for the study.

Method of Data Collection and Analysis

Primary data was used for the study. Data obtained was analyzed using descriptive statistics, multiple regression, net return analysis and mean score.

RESULTS AND DISCUSSION

Socioeconomic Characteristics of the Respondents

Result in table 1 showed that majority (46.7%) of the respondents were in the age group of 41-60 years, (30%) of the respondents were in the age range of 21-40 years, while (23.3%) of the respondents were in the age range of 61-80 years. The mean age was 49 years. This implies that there are economically active people



involved in cassava production in the study area and are able to carry out the tedious work in agriculture. Majority (70.0%) of the respondents were males while (30.0%) were females. Thus, male headed households engage in cassava production more than female headed households. This could be due to the socio-cultural milieu of the area which gives males the access to production resources like land where cassava production is practiced more than females. This is in line with the findings of Orisakwe & Agomuo (2011) in their findings, male engaged in crop production in Imo state Nigeria. Majority (65.0%) of farmers were married, 13.3% were single, while 11.7% were divorced and 10.0% widowed. This implies that greater proportion of farmers in the area were married individuals. Consequently, it increases access to production variables such as land and labour which are traditionally owned and provided by husbands. Obasi *et al.* (2012) and Orisakwe, & Agomuo (2011) revealed in their separate studies that majority of crop farmers in Nigeria were married. Majority (46.7%) of the respondents had 21-40 years' experience in cassava production, (30.0%) had between 1-5 while (23.3%) had above 40 years of farming experience in cassava production. The mean year of experience in cassava production was 22 years which is quite encouraging. The number of years a farmer spent in the farming business according to Nwaru (2004) and Ikeke (2006) could give an indication of the practical knowledge he or she had acquired on how he or she could overcome certain inherent problems. House hold size of most respondents ranged from 6-10 members with (53.3%), 1-5 members with (23.3%) and 11-15 members with (23.3%). The average household size was 8 members connoting large household size. The findings of this study conformed to that of Okoye *et al.*, (2008) who confirmed that cocoyam farmers in Anambra state had large household size of more than 4 persons. About 36.7% had secondary education as their highest educational level, 23.3% had primary education, 13.3% had ND/NCE, 10.0% had HND/First degree and

10.0% had no formal education as their highest educational level while 6.7% had higher degree as their highest educational level, consequently, majority of the respondents are literate. The findings of this study agreed with Chukwuji (2006) who opined that education had positive effect on cassava production output in Delta State, Nigeria. Majority of the respondents (71.7%) had farm size less than 1.00 hectares. About 23.3% had farm size between 1.00 and 2-00 hectares while 5% had farm size more than 2.00 hectares. The mean size of farm land use for cassava production was 0.76 hectares. This implies that cassava farmers in the study area are mainly smallholder farmers operating on less than 1ha of farmland. This finding is in line with Kolawole and Ojo (2007) who opined that Nigerian agriculture involved small-scale farmers who were scattered in various communities. Greater percentage (55.0%) of the farmers affirmed to have had contact with extension agent while the remaining 45.0% have not had contact with extension agents. Extension visit encourages the development of receptive attitude in the farmers to accept technological changes in their farming practices, and also equips them with managerial skill, through informal education and demonstrations, to be able to sustain accepted technologies. Table 1 also showed that majority (35.8%) of the respondents earned between N200, 000–N400, 000 annually. The mean of annual farm income was N394, 345.39k. The implication of this was that majority (35.8%) earned average income from their respective farms. Majority (68.3%) of farmers belonged to cooperative society while 31.7% of farmers do not belong to cooperative society. The possible reasons why majority joined cooperative society could be as a result of satisfying their basic need which sometimes could be achieved collectively as opined by Ekong (2010).



Table 1: Distribution of Respondents According to Socioeconomic Characteristics

Socioeconomic variables	Frequency	Percentage	Mean/Mode
Sex			
Male	84	70.0	Male
Female	36	30.0	
Age			
21-40	36	30.0	49 years
41-60	56	46.7	
61-80	28	23.3	
Marital status			
Single	16	13.3	Married
Married	78	65.0	
Divorced	14	11.7	
Widowed	12	10.0	
Farm experience			
1-20	36	30.0	22years
21-40	56	46.7	
>40	28	23.3	
Total	120	100.0	
Household size			
1-5	28	23.3	8 members
6-10	64	53.3	
11-15	28	23.3	
Total	120	100.0	
Level of education			
Non formal education	12	10.0	Secondary education
Primary education	28	23.3	
Secondary education	44	36.7	
ND/NCE	16	13.3	
HND/First degree	12	10.0	
Higher degree	8	6.7	
Total	120	100.0	
Farm size			
<1.0	86	71.7	0.76Ha
1.0-2.0	28	23.3	
>2.0	6	5.0	
Total	120	100.0	
Access to extension service			
Yes	66	55.0	Yes
No	54	45.0	
Total	120	100.0	
Annual income			
<200, 000	29	24.2	₦ 394,345
200,000-400,000	43	35.8	
401,000-600,000	26	21.7	
601,000-800,000	9	7.5	
801,000-1000,000	8	6.7	
>1,000,000	5	4.2	
Membership of cooperative society			
Yes	82	68.3	Yes
No	38	31.7	
Total	120	100.0	

Source: Field Survey, 2023



The Effects of Farmers' Socio-economic Characteristics on their Output

The regression result of the effect of farmer's socio-economic characteristics on their output is presented in Table 2. The result indicated an R^2 value of 0.801 meaning that 80% of the variability in the output was explained while the remaining 20% could be attributed to error term. The F-value was 38.400 at 1% significance which means that the independent variable jointly explained the dependent variable. Table 2 indicated that farming experience (0.173), household size (0.086), level of education (0.076) and farm size (0.148) were significant variables that influence the output of cassava produced in the study area, with their positive relationships. The coefficient for years of farming experience (0.173) was positively signed and significant at 1% level. This is in confirmation with the *a priori* expectation because as cassava producers acquire more experience, he/she will be able to plan and organize their production in a more efficient way in order to boost production capacity, thus enhancing improvement in the level of output. This is in accord with the finding of Mafmisebi (2007) who reported a positive relationship with output and level of experience. The coefficient of educational level (0.076) revealed a positive relationship with output and statistically significant at 5% level.

Education increases exposure to useful information and this will likely enhance their level of knowledge and adoption of improved cassava production techniques that makes production easier. The implication is that a unit increase in the level of education will definitely increase the probability to acquire more profit in production of various cassava products. The coefficient of farm size is positive and significant at 1% level. This implies that, the more access a cassava farmer has to land, the more the output of the farmer. This finding agrees with the study of Onubuogu *et al.* (2014) who observed that farmers are mainly smallholder farmers operating on less than or equal to 1.5 hectares of farmlands. This could be attributed to predominant land tenure system or due to the increasing population. They also found that large farm size increases agricultural productivity and improves farmers' technical, allocative and resource use efficiency. Okike (2006) reported that farm size contributed positively to cassava farming. Indicating that cultivation of larger hectare of land leads to increase in cassava output. Household size coefficient (0.086) has a positive relationship with cassava output and significant at 5% level. This implies that, the higher the number of household members, the higher the labour and in turn increases the output.

Table 2: Regression result of the effect of farmer's socio-economic characteristics on their output

Variable	Coefficient	t-values
(Constant)	-.176	0.874*
Labour	-.061	0.419*
Farming Experience	.173	0.018**
Household Size	.086	0.387**
Level of Education	.076	0.712**
Farm Size	.148	0.175*
F-value	38.400**	
R^2	.801	
Adjusted R^2	.736	

Source: Computed from Field Survey, 2023

** and * denote 1 and 5% level of significance respectively.



Profitability of Cassava Production

The profitability analysis cassava production is presented in Table 4.3. Table 4.3 shows the cost incurred from variable inputs like labour, Cassava cuttings, transportation and other costs. Labor therefore took the highest percentage of Total Variable Cost (TVC). This agrees with the study conducted by Ebukiba (2010) and Okon and Enete (2009) which labor constitutes the highest production cost in their works. The Costs and returns analysis shows cassava production requires investment of N 149,630

and the gross margin was N118, 760. Return on capital invested indicated that the farmers had ROCI of 1.79. This implies that every N1 invested yielded N1.79k and this is an indication of profitability. This result also agrees with the findings of Akor (2014) in this study of economics of Cashew Nut Production in Kogi State Nigeria. He confirmed the profitability of cashew nut production as shown by the ROCI of N 1.8k.

Table 3: Profitability of Cassava Production

Parameters	Values(₦)	100kg
Variable cost (VC)		
Cassava cuttings	21,250	
Fertilizer	12,350	
Labour	84,450	
Herbicides	7,550	
Transportation	19,500	
Pesticides	4,530	
Total variable cost (TVC)	149,630	
Total Fixed Cost (TFC)	0	
Revenue		
Cassava tuber	203,570	
Stem cuttings	43,520	
Quantity consumed	21,300	
Total revenue (TV)	268,390	
Gross Margin TR-TVC	118,760	
Benefit Cost Ratio (BCR)	1.79	

Source: Field Survey,
2023



Constraints Associated to Cassava Production

Table 4 presents the constraints in cassava production as identified by the sample cassava farmers in the study area. The result revealed that the major constraints in cassava production in the study area include high cost of labour, lack of access to improved planting materials, inadequate capital, pests and diseases, inefficient or ineffective extension delivery service, poor access roads to markets and high cost of equipment. High cost of labour ($X = 2.37$) was also mentioned by the farmers as a major problem affecting cassava production in the study area. The finding on high cost of labour is in consonance with the work of Onaih *et al.* (2018) in which they found that labour was an important determinant of rice output. Lack of access to improved planting materials with a $X = 2.28$ was also rated by the respondents as a serious problem to cassava production in the study area. Mkamilo and Jeremiah (2015) reported that there was no organization responsible for the multiplication and distribution of cassava planting materials in the country causing inadequacy of planting materials. Inadequate capital with $X = 2.28$ was considered by the farmers as a serious problem facing cassava farmers in the study area. Further, farmers were incapable of purchasing the inputs as they were very expensive. The finding relates with what was indicated by Achoja *et al.* (2012) who said that inadequate finance for the cassava cultivation was a major problem to smallholder farmers in Nigeria. Pests and diseases with $X = 2.20$ was also rated by the respondents as a serious problem to cassava production in the study area. Cassava is plagued by pests and diseases such as the cassava mosaic disease, bacterial blight, leaf rollers, termites, anthracnose, root rot, mealy

bugs, spider mites, white flies, rodents, stem girdlers, green spider mite (GSM) and the large grain borer which attacks dry chips of cassava in storage (Adeniji *et al.*, 2015). Poor access road to markets ($X = 2.18$) was mentioned farmers as one of the problem facing cassava farmers in the study area. Most rural roads are bad and therefore make movement of inputs, produce and people difficult. Farmers had to transport inputs and produce on their heads, bicycles or motorcycles especially during the rainy season when most of the rural areas are inaccessible by vehicles. In addition to the problem of poor access roads to markets, marketing of cassava can be particularly problematic because the crop cannot be stored for a long time after harvest and must be utilized or processed within a day or two after harvest. Inefficient or ineffective extension delivery service with a $X = 2.08$ was also rated as a serious problem by the respondents. This can be attributed to the shortage of extension staff needed to give proper attention to all farmers as well as inadequate field and office facilities. The implication of this is that there will be limited access of the farmers to improved cassava farming methods and also limited transfer of farmers' problems back to the research system. High cost of equipment is rated as a problem with a $X = 2.07$, which is a significant constraint. Farmers buy input used in cassava production at a high price without government subsidy.



Table 4: Constraints to Cassava Production

S/N	CONSTRAINTS	VS	S	NS	Total	MEAN SCORE	REMARK
1.	Inadequate capital	48	58	14	274	2.28	Serious
2.	High cost of equipment	36	56	28	248	2.07	Serious
3.	High cost of labour	44	76	0	284	2.37	Serious
4.	Lack of access to improved planting materials	34	86	0	274	2.28	Serious
5.	Inefficient or ineffective extension delivery service	34	62	24	250	2.08	Serious
6.	Poor access roads to markets	42	58	20	262	2.18	Serious
7.	Poor marketing of products	22	50	48	214	1.78	Not Serious
8.	Lack of storage facilities	20	54	46	214	1.78	Not Serious
9	Pests and diseases	44	56	20	264	2.20	Serious

Source: Field Survey, 2023.

Conclusion and Recommendations

In conclusion, majority of the respondent were male, married with an average household size of 8 members with adequate access to extension services with average annual income of N 394,345. It was also discovered that cassava production in the study area was profitable with BCR of N 1.79k, with inadequate capital and

high cost of labour constitute the major problems of cassava production in the area among others. It is therefore recommended that Agricultural policy measures should be taken towards provision of ready market with stable prices for cassava produce through creation of marketing boards by the government.

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