DOI: https://dx.doi.org/10.4314/gjass.v17i1.4

GLOBAL JOURNAL OF AGRICULTURAL SCIENCES VOL. 17, 2018: 33-41
 ISSN 1596-2903
www.globaljournalseries.com, Email: info@globaljournalseries.com

COMPARATIVE COST AND RETURN ANALYSIS OF CASSAVA PRODUCTION BY ADOPTERS AND NON-ADOPTERS OF IMPROVED CASSAVA VARIETIES AMONG FARMERS IN IBESIKPO ASUTAN LGA, AKWA IBOM STATE, NIGERIA.

KINGSLEY OKOI ITAM, EUCHARIA AGOM AJAH AND MEDIONG JOHN UDOEYOP

(Received 18 July 2018; Revision Accepted 3 October 2018)

ABSTRACT

This research is a comparative cost and return analysis of cassava production by adopters and non-adopters of improved cassava varieties among farmers in Ibesikpo Asutan LGA, Akwa Ibom State, Nigeria. A multistage sampling technique was used to select 100 respondents in a ratio of 50 adopters and 50 non- adopters. Data were collected through questionnaire and analyzed using descriptive and inferential statistics. Gross margin was carried out to estimate cost and return. Results revealed that females (68 % and 64 %) were dominant for both groups of cassava farmers. Majority (88 %) of the farmers were educated, implying that they would be more amenable to adopt technologies. The cost and return analysis shows that, total variable cost per hectare was N56,455.00 and N36,850.00 with a gross margin of N77,550.00 and N36,560.00 for adopters and non- adopters respectively, indicating that, cassava farming is profitable. Determinants of cassava production for both groups of farmers were farm size, cassava cuttings, fertilizer use and extension contact. Whereas increased farm size, cassava cuttings and extension contact significantly and positively influenced output of both groups of farmers, fertilizer use had a negative but significant influence on output of adopters, implying that fertilizer use resulted in decrease output of the adopters. The adopters are advice to discontinue the use of fertilizer. Furthermore, lack of awareness and high cost of inputs were among the major constraints to full adoption of improved cassava varieties in the study area. Therefore, it is recommended that policies aimed at improving farmer's education and awareness should be redesign for proper implementation.

KEYWORDS: Comparative, cost and return, profitability, cassava, improved varieties, production, adopters, non-adopters.

INTRODUCTION

Agriculture is the economic mainstay of the majority of households in Nigeria and is a significant sector in Nigeria's economy, providing employment for more than 70 % of the population. A sectoral analysis in 2006 of real gross domestic product (GDP) indicated that, the agricultural sector contributed about 42 percent of the Gross National Product (GNP) compared with 41.2 percent in 2005 (Central Bank of Nigeria, 2006). Recently, the contribution of agriculture to the country's GDP has further been diluted to 21.97 %, as a result of rebasing, giving other sectors such as finance services, construction, entertainment etc. the opportunity to brace up their contribution to the economy.

Nigerian agriculture is characterized by considerable regional and crop diversities that feature among others tree and food crops, forestry, livestock and fishery (Echebiri and Edaba, 2008). Cassava is the most commonly cultivated food crop in almost every part of the country, and it may be the solution to Nigeria's food security problem due to its ability to grow in a wide range of conditions, some of which are quite unsuitable for other crops. It is a perennial woody shrub commonly grown in the tropics and can be regarded as the most important root crop in terms of land area devoted to total production (Onubuogu, 2014).

Nigeria is the largest producer of cassava in the world with over 34 millions tonnes produced in 2007, (Food and Agricultural Organization, 2007). The growth of cassava production has been primarily due to rapid population growth, large internal market demand, availability of high yielding improved varieties of cassava and existence of improved cassava technology. However, most of what is produced was consumed locally until recently, with over 50 percent of harvested produce wasted due to production post harvest inefficiencies (Lenis *et al*, 2006). They posit that, if these inefficiencies are addressed alongside the current development of improved varieties of cassava coupled

Kingsley Okoi Itam, Department of Agricultural Economics, University of Calabar, Calabar, CRS, Nigeria.
Eucharia Agom Ajah, Department of Agricultural Economics, University of Calabar, Calabar, CRS, Nigeria.
Mediong John Udoeyop, Department of Agricultural Economics, University of Calabar, Calabar, CRS, Nigeria.

with an associated yield increase, Nigeria could take advantage of the increased national and international market around the globe. Cassava is produced largely by small scale farmers using rudimentary implements. The average land holding is less than 2 hectares and for most farmers, family labour remains essential input. Land is held on communal basis, which is either inherited or rented. Nweke (2003) and Echebiri and Edaba, (2008) posited that cassava production has doubled and tripled with nearly 90% of production from small holder farms cropped with earlier released improved varieties (TMS 30572, TMS 4(2)1425, TMS 30555) and other traditional low yielding varieties.

Cassava roots are rich in starch and contain significant amount of calcium, phosphorus and vitamins. However, they are poor in protein and other nutrients. In contrast, cassava leaves are good source of proteins if supplemented with the amino acid methionine, despite containing cyanide (Odoemenen and Otanwa, 2011). Apart from cassava being processed and consumed as fufu, garri etc by both rural and urban dwellers in Nigeria, the products are also used for making starch, livestock feed, ethanol production, adhesive for pharmaceutical industries and flour for confectioneries industries. In view of these, efforts have been intensified towards increasing production in the country to a level of sufficiency. One of such commitment was the pronouncement and investment of the Obasanjo administration to increase production to a level that serves the nucleus of much industrial production in Nigeria in 2002. Cassava suddenly gained prominence in Nigeria following the announcement of a presidential initiative on the crop. The initiative was aimed at using cassava production as the engine growth in Nigeria. In recent times, government has encouraged the use of the crop to produce a wide range of industrial products such as ethanol, glue, glucose, syrup and bread. The Nigerian government has also passed a law, making it compulsory for bakers to use composite flour of 10% cassava and 90% wheat for bread production. The new regulation which came into effect in January 2005, stipulated that, the large flour mills that supply flour to bakeries and confectioneries must pre-mix cassava flour with wheat flour (Eze and Nwibo, 2014). This initiative has encouraged more farmers to go into cassava production in Nigeria. However, in spite of this, Omonona, (2009) and Oyegbami *et al*, (2010) notes that cassava production is still mostly done by rural smallholder farmers using low level production techniques. Though government at various levels has been trying in various ways to encourage rural farmers to adopt the modern cassava production technologies in order to increase productivity, there are constraints to adoption in rural farming communities (Eze and Nwibo, 2014; Teklewold *et al,* 2006; Otoo, 1994; and Fresco, 1993). Therefore, the need to carry out a comparative study of cost and return of adopters and non adopters of improved cassava varieties with a view to determine their profitability and constraints is imperative.

The broad objective of this study is to carry out a comparative cost and return analysis of cassava production by adopters and non- adopters of improved varieties among farmers in Ibesikpo Asutan Local Government Area of Akwa Ibom State. The specific objectives include: to examine the socio-economic characteristics of cassava farmers, estimate cost and returns, determine the profitability, identify the determinants of cassava production and examine the constraints associated with adoption of improved varieties in the study area.

DEFINITION OF TERMS / CONCEPTS

Production theory:

The general theory of production emphasizes that, there is always a maximum quantity of farm output which is technically possible to produce using a given combination of inputs. The production theory is based on the assumptions that; all units of variable inputs and outputs are of uniform quality and are perfectly indivisible, the technology utilized by the farm firm does not change over the production period considered and there is a maximum output from a given combinations of inputs (Igben and Eyo, 2002).

Production costs:

Production cost refers to the value of inputs used in producing a product or output. There are two types of costs in agricultural production. These are fixed and variable costs. In cost analysis, fixed and variable costs are usually considered in the two major production and marketing periods; the short and long run periods. The short run period is the time available for production during which output produced can be increased or decreased by changing only the quantities of variable inputs used in the farm. Hence, in the short run, some inputs can be varied while others are fixed. The long run period describes the time at the disposal of the farmer which is long enough for him to change the quantities of any farm input. Therefore, in the long run, all inputs are variable (Igben and Eyo, 2002).

Fixed costs:

Fixed cost refers to cost which does not change as output changes in a farm firm. They include physical assets such as land, buildings, rent, interest on capital etc. Fixed cost incurred in cassava production may include depreciation, interest on loan etc.

Variable costs:

Variable costs are costs which change as output changes. They are cost which the manager has control over at any given point in time. They can be increased at the manager's discretion and will increase as production increases. Variable cost vary with the size of the farm e.g. labour cost, cost of cassava cuttings/stems, cost of fertilizer, transportation cost etc. The product of fixed and variable costs is the total cost of production.

Gross margin:

Gross margin is the difference between the gross farm income (total revenue) and total variable cost. It is often used to estimate the cost and return associated with a business concern. It is expressed as;

GM = TR – TVC

When expressed as a percentage of total sales revenue, gross margin is given as;

GM (%) = Revenue – Cost of Goods Sold/ Revenue

Profitability

Profitability is a measure of the relationship between the level of profits earned during an accounting period and the level of resources committed to earn those profits. It is influenced by the margins between costs and returns per unit of production and the number of units sold. Hence, it is closely tied to efficiency and scale (Eze andNwibo2014).

METHODOLOGY

Study area

The study was conducted in Ibesikpo Asutan Local Government Area, Akwa Ibom State. It comprises of Ibesikpo clan formally in Uyo and Asutan, carved out of the then Ekpe Atai Local Government Area. The two clans were merged and called Ibesikpo Asutan. It occupies the western axis of Akwa Ibom State lying between latitudes $40^0 32^{`}$-50^0 33 East and longitude 70^0 25- 80 25 North. The area has seventy nine (79) villages grouped into ten (10) political wards with Ibesikpo and Asutan sharing five (5) each. It has a total population of 137,101 (National Population Census 2006).

Ibesikpo Asutan is blessed with fertile and favourable climate with an annual average temperature of 28^0C which promotes the production of both food and cash crops such as cassava, yam, plantain, banana, maize, cocoyam and oil palm. Subsistence farming is predominant in the area and most of the peasant farmers form cooperatives to enable them source for credit facilities, input and labour.

Sampling Technique

The multistage sampling technique was used to select one hundred (100) respondents. The first stage involved the purposive selection of ten (10) wards based on the intensity of cassava production. In the second stage, the farmers were stratified into adopters and non adopters. The third stage involved the random selection of 10 farmers from each of the 10 wards in the ratio of 5 adopters and 5 non adopters from each ward, making a tool of 50 adopters and 50 non adopters respectively. In all, a total number of one hundred (100) cassava farmers were interviewed. Information on farmers' socio-economic characteristics, costs and returns in cassava production and constraints to production were collected by administering questionnaires to the farmers.

Analytical Technique

Data used for the study were analyzed using descriptive statistics, gross margin analysis and regression model. Descriptive statistics such as means, frequency distribution tables and percentages were used to analyze the socio-economic characteristics of the farmers and constraints associated with adoption of improved cassava varieties. Gross margin analysis was carried out to estimate costs and returns and profitability of cassava production by adopters and non-adopters, while the regression model using the Ordinary Least Square (OLS) was employed to ascertain the determinants of cassava production among adopters and non-adopters of improved varieties.

Model Specification

Gross margin is the difference between the gross farm income (total revenue) and the total variable cost. It is given as;

GM = TR – TVC

Where;
GM = Gross Margin
TR = Total Revenue
TVC = Total Variable Cost

Since fixed cost is negligible in subsistence farming, the profitability of adopters and non adopters of improved cassava varieties was explained by the gross margin analysis.

The Ordinary Least Square (OLS) production function model was used to determine the influence of some production variables on output of cassava for adopters and non adopters. It is expressed as;

$Y = f (X_1, X_2, X_3, X_4, X_5, \ldots\ldots\ldots\ldots, U)$

Where;
Y = Total output of cassava (kg)
X_1 = Farm size (ha)
X_2 = Cost of cassava cuttings (bundles)
X_3 = Cost of fertilizer (kg)
X_4 = Labour (Man-days)
X_5 = Number of extension contact (No contact = 0, Contact = 1)
U = Error term (Eze andNwibo2014).

RESULTS AND DISCUSSION

Socio-economic Characteristics:

The socio-economic characteristics of the respondents are presented in Table 1. The age distribution of the farmers shows that 42% of the adopters of improved cassava varieties were in the age range of 36-45years, while 36% of the non -adopters were within that same age range and 40% in the age range of 46-55years with mean age of 41.40 and 43.98 respectively. This implies that, most of the adopters of improved varieties were younger than the non- adopters and further implies that the adopters will more easily accept new technology than the non -adopters. The result agrees with that of Ebukiba (2010), who reported age range of 31-50 years and opined that the cassava farmers were in the economically active age and as such, will respond positively to any intervention aimed at improving their productive capacity. The results also revealed that majority (68%) of the farmers who adopted improved cassava varieties were females and about 32% were males. This is so because cassava farming is dominated by females in the study area and they are more likely to be in contact with extension agents than the males.

The educational level of the farmers shows that about 88% of the adopters of improved cassava varieties had one form of formal education or the other with a mean of 9.08, while majority (54%) of non-adopters with a mean of 4.65 had no formal education.

This implies that, there would be a high adoption rate among the adopters to enhance production, since the more educated farmers are, the higher their utilization of technology. Bifarin *et al,* (2010) noted that, education enhances the ability of farmers to see, decipher and make good use of information about production inputs. The results further revealed that, about 54 % and a mean of 15.9 of the adopters of improved cassava varieties had farming experience of 11-20 years, meaning that they would be more amenable to adopting technology for increased productivity based on previous experience. Farmers sometimes rely on experience more than education to accept any innovation that would improve their capacity to produce. The more years a farmer spends in farming, the more experienced he or she would be and the greater his or her chances of accepting innovation. The distribution of family size shows that the adopters of improved cassava varieties had 6-10 persons in their household with a mean of 6.28, while the non adopters had a mean of 6. This implies the availability of family labour, thereby reducing cost of hired labour. Nonso, (2012) and Mbanasor and Kalu, (2008), observed that, large family size ensures availability of labour and expansion of farm size. Family size is an important factor in determining labour for farm work. A farmer with large household size has the chance of using them as farm labour, which may in turn increase the size of land cultivated and enhance output. This finding supports the results of Onubuogu *et al* (2014), who noted that large family size compliment labour to enhance production, reduce cost of hired labour and increase profit.

Further analysis shows that, majority (56 % and 50 %) of the adopters and non -adopters had farm holdings of between 0.5-0.9 ha and mean of 0.647ha and 0.638ha respectively. This is less than 1ha, indicating that majority of the farmers in the study area were small -scale farmers producing at subsistence level. Thus, their utilization of farm resources will be low. According to Abdullahi, (2012), the size of farm possessed by a particular farm family is believed to determine the extent to which other resources (capital, labour etc) will be utilized for optimum productivity.

Table 1: Socio-economic Characteristics of the Cassava Farmers in the Study Area.

	Adopters		Non-adopters	
Variables	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Age				
< 25	0	0	2	4.00
26-35	12	24.00	8	16.00
36-45	21	42.00	18	36.00
46-55	15	30.00	20	40.00
>56	2	4.00	2	4.00
Total	**50**	**100**	**50**	**100**
Mean	**41.40**			**43.98**
Sex				
Male	34	68.00	32	64.00
Female	16	32.00	18	36.00
Total	**50**	**100**	**50**	**100**
Education				
No formal edu.	6	12.00	27	54.00
Primary	14	28.00	15	30.00
Secondary	21	42.00	8	16.00
Tertiary	9	18.00	0	0.00
Total	**50**	**100**	**50**	**100**
Mean	**9.08**			**4.65**
Farming exp.				
1-10	11	22.00	13	26.00
11-20	27	54.00	21	42.00
21-30	12	24.00	14	28.00
>31	0	0	2	4.00
Total	**50**	**100**	**50**	**100**
Mean	**15.9**		**17.8**	
Family size				
1-5	22	44.00	22	44.00
6-10	26	52.00	24	48.00
11-15	2	4.00	4	8.00
Total	**50**	**100**	**50**	**100**
Mean	**6.28**		**6.00**	
F\arm size				
0.2-0.5	18	36.00	20	40.00
0.6-0.9	28	56.00	25	50.00
1.0-1.3	3	6.00	3	6.00
>1.3	1	2.00	2	4.00
Total	**50**	**100**	**50**	**100**
Mean	**0.65**		**0.64**	

Source: Field Survey data, 2015

Costs and Returns of Adopters and Non- adopters of Improved Cassava Varieties

The major cost elements in cassava production are stem cuttings, fertilizer and labour. Land was however, not valued because it has little or no opportunity cost in the study area. Tools were used for other farming enterprises and hence depreciation was not considered in the course of computation. Table 2 provides the summary of costs and returns for producing cassava in one hectare of land by adopters and non-adopters of improved cassava varieties in the study area. The total variable cost per hectare for adopters was N56,455.00 and total revenue was N134,005.00 with a gross margin of N77,550.00, while the total variable cost for non-adopters was N36,850.00 with a total revenue of N73,410.00 and a gross margin of N36,560.00. This implies that, the adopters of improved cassava varieties made more profit, though they incurred more production cost than the non-adopters. Thus, cassava farming with improved varieties is more profitable in the study area. Cost of labour and fertilizer on the adopters accounted for more than 60% of the total variable cost, while cost of cassava cuttings and fertilizer were the major costs of production for non - adopters.

Table 2: Costs and returns of adopters and non- adopters of improved cassava varieties in Ibesikpo Asutan LGA of Akwa Ibom State, Nigeria.

Item (N/ha)	Adopters	Percentage	Non-adopters	Percentage
Variable Costs				
Cost of labour	23,500.00	41.62	6,750.00	18.32
Cost of fertilizer	16,350.00	28.96	8,500.00	23.07
Cost of cassava cuttings	12,255.00	21.71	8,350.00	22.66
Contingency	4,350.00	7.71	3,250.00	8.82
TVC	**56,455.00**		**36,850.00**	
Revenue				
Cassava tubers	105,355.00		67,780.00	
Cassava cuttings	28,650.00		5,630.00	
Total Revenue	**134,005.00**		**73,410.00**	
Gross Margin	**77,550.00**		**36,560.00**	

Source: Field Survey, 2015

Analysis of the Determinants of Cassava Production by Adopters and Non- Adopters of Improved Cassava Varieties using the Regression result

The determinants of cassava production for adopters and non -adopters were analyzed using the production function estimates as presented in Tables 3 and 4. Four functional forms; linear, semi-log, double log and exponential were estimated. The semi-log and linear functional forms were chosen as lead equations for adopters and non- adopters respectively. This is on the strength of coefficient of determination (R^2), number of significant variables, signs of estimated parameters and F-cal. The coefficient of determination (R^2) for adopters and non adopters is 0.744 and 0.863 respectively. This imply that about 74% of the variation in output of cassava for adopters is explained by the variables included in the model with the remaining 26% unexplained, while about 86% of the variation in output for non adopters is explained, with the remaining 14% unexplained. The unexplained variations are due to random error (U) in the variables. The regression results are as follows:

For Adopters

$$Y = 6.429 + 1.058X_1 + 0.027X_2 + 0.264X_3 + 0.129X_4 + 0.171X_5$$
$$(5.869) \quad (-0.320) \quad (-1.907) \quad (-1.104) \quad (1.708)$$

For Non -adopters

$$Y = 197.384 + 0.475X_1 + 0.231X_2 + 0.304X_3 + 0.110X_4 + 0.001X_5$$
$$(5.782) \quad (3.114) \quad (3.842) \quad (1.382) \quad (0.007)$$

Table 3: Regression Analysis Result for Adopters of Improved Cassava varieties

Variable	Linear	semi-log	double log	Exponential
Constant	276.455	6.429	7.959	2685.878
	(1.577)	(57.15)	(53.27)	(7.997)
X_1	0.781	1.058	0.805	0.632
	(5.768)***	(5.836)***	(8.614)***	(6.279)***
X_2	-0.050	-0.027	0.041	0.0096
	(-0.785)	(-0.320)	(-0.537)	(-1.164)
X_3	0.128	-0.264	0.006	0.141
	(1.241)	(1.907)*	(0.068)	(1.448)
X_4	-0.006	-0.129	-0.056	0.007
	(1.239)	(-1.104)	(-0.749)	(0.086)
X_5	0.093	0.171	0.185	0.268
	(1.239)	(1.798)*	(2.223)**	(2.982)***
R^2	0.857	0.744	0.793	0.760
Adjusted R^2	0.841	0.715	0.769	0.732
F-cal	52.898	25.574	33.645	27.820

Source: Computed from field Data 2015
Note: *** P < 0/01, ** P < 0/05 and *P < 0/10

The coefficient of farm size (X_1) was a positive and significant variable at the 1% level of probability for adopters and non adopters of improved cassava varieties. This means that the cultivation of large hectare of land will lead to increase in cassava output. The result agrees with the findings of Onubuogu (2014), Amodu *et* al, (2011), Okike (2006) and Umoh (2006), who reported farm size to be positive and significant in South South and Savanna zone of Nigeria. In addition, cassava cuttings (X_2) and fertilizer (X_3) were also positive and significant for non- adopters (Table 4). This implied that increase in the cassava cutting bundles and fertilizer used for cultivation will increase cassava output of non adopters. This is so because the non adopters did not use improved varieties, they need to apply fertilizer to boost the soil fertility in order to increase output. However, the coefficient of fertilizer was negative and statistically significant at 10% level of probability, indicating that increasing fertilizer use for cassava production by adopters will lead to decrease output. This is because increasing fertilizer use will increase cost of production and reduce total revenue. The result agrees with that of Eze and Nwibo (2014), who reported fertilizer to be negative and significant in Delta State.

Furthermore, the coefficient of number of extension contacts (X_5) was positive and significant at 10% level for the adopters, implying that increase in the number of extension contacts will lead to increase in output of adopters of improved cassava varieties. Extension plays an important role in disseminating innovation information in agriculture, hence farmers who have regular contacts with extension agents often do better in farm production.

The F-cal 25.514 and 54.096 for adopters and non adopters were significant at 1% and 5% respectively. This implies that the joint effect of the variables included in the model explained the variation in the output of cassava in the study area.

Table 4: Regression Result for Non-adopters of Improved Cassava Varieties.

Variable	Linear	Semi-log	Double log	Exponential
Constant	197.384 (2.232)	5.842 (48.239)	7.017 (57,027)	134.475 (8.051)
X_1	0.475 (5.782)***	0.705 (5.645)**	0.620 (6.268)***	0.465 (4.853)***
X_2	0.231 (3.114)***	0.035 (0.309)	0.154 (1.575)	0.256 (2.699)**
X_3	0.304 (3.842)***	0.099 (0.822)	0.282 (2.864)***	0.369 (3.699)***
X_4	0.110 (1.382)	0.013 (0.110)	0.024 (0.263)	0.117 (1.337)
X_5	0.001 (0.007)	0.055 (0.497)	0.017 (0.151)	0.023 (0.220)
R^2	0.863	0.684	O.680	0.700
Adjusted R^2	0.843	0.647	0.643	0.665
F-cal	54.096	18.592	18.307	20.040

Source: Computed from field Data 2015
Note: *** P < 0/01, ** P < 0/05

Constraints Associated with the Adoption of Improved Cassava Varieties in the Study Area

Table 5 presents the problems militating against the full adoption of improved cassava varieties by adopters and non adopters for increased productivity in the study area. The result shows that, lack of extension contact (80%), inadequate finance (86%) and lack of awareness (75%) constitutes the most problems for the non adopters. Other problems are illiteracy and poor yield. For the adopters, high cost of inputs (81%) and labour (60%) were the most problems encountered. This is as a result of purchase of improved cassava cuttings and unavailability of labour during the peak period.

Table 5: Constraints associated with the adoption of improved cassava varieties in Ibesikpo Asutan LGA of Akwa Ibom State, Nigeria.

Constraints	Adopters	Non-adopters
High level of illiteracy	12%	55%
Inadequate finance	74%	86%
Lack of extension contact	15%	80%
High cost of labour	60%	41%
Lack of awareness	0%	81%
Poor yield	2%	75%
Inadequate land	35%	54%
High cost of inputs	65%	74%

Source: Field survey Data 2015.
Note: The percentage exceeds 100 due to multiple responses.

CONCLUSION

Cassava farming is dominated by females among the adopters and non adopters in the study area. Production was greatly influenced by farm size, cassava cuttings, fertilizer and extension contact. Increase in farm size, cassava cuttings and fertilizer use will result in increased output of the non adopters of improved varieties. For the adopters, the more farm hectares they cultivated and number of extension contacts they have, the more their output. This has confirmed the fact that adoption of innovations results to increase in output and income of small scale farmers. Therefore, the non adopters would be encouraged to adopt the improved varieties by addressing the problem of lack of extension contact. The study also revealed that cassava production in the study area is profitable but the adopters earn more profits and incurred more costs than the non adopters. Cost of labour and fertilizer were the major costs of the adopters.

Furthermore, the problems militating against the adoption of improved cassava varieties in the study area are high level of illiteracy, inadequate finance, lack of extension contact, lack of awareness and high cost of inputs. Therefore, there is need for redesigning and effective implementation of already existing policies aimed at improving farmer's education in order to increase their level of awareness. Farmers are also encouraged to form cooperatives in order to enable them access credit to procure farm inputs.

REFERENCES

Abdullahi, A., 2012. Comparative Economic Analysis of Rice Production by Adopters and Non-Adopters of Improved Varieties among Farmers in Paikoro Local Government Area of Niger State. Nigerian Journal of Basic and Applied Science. 20(2): 146-151.

Amodu, M. Y., Owolabi, J. O. and Adeola, S. S., 2011. Resource Use Efficiency in Part-time Food Crop Production. Nigerian Journal of Basic and Applied Science. 19(1): 102-110.

Bifarin, J. O., Alimi, T., Baruwa, O. I. and Ajewole, O. C., 2010. Determinants of Technical, Allocative and Economic Efficiencies in Plantain (Musa spp.) Production Industry, Ondo State, Nigeria. Proceeding of International Conference on Banana and Plantain in Africa, Edited by T.Dubois et al. Acta Hort. 879, 199-210.

Central Bank of Nigeria, (C.B.N)., 2006. Statistical Bullion 2(4), 135.

Ebukiba, E., 2010. Economic analysis of cassava production in Akwa Ibom State. Agricultural and Biology Journal of North America. 1(4): 612.

Echeburi, R. N. and Edaba, M. F., 2008. Production and Utilization of Cassava in Nigeria: Prospects of Food Security and Plant Nutrition. Global Journal of Agricultural Science. 4(1): 38-52.

Eze, A. V. and Nwibo, S. U., 2014. Economic and technical efficiency of cassava production in Ika North East Local Government Area of Delta State, Nigeria. Journal of Development and Agricultural Economics. 6(10): 429-436. DOI:10.5897/JDAE2013.0541

Fakayode, S. B., Babatunde, R. O and Ajao, R., 2008. Productivity analysis of cassava based production system in the Guinea savannah: Case study of Kwara state, Nigeria. America Eurasian Journal of Scientific Research.

Food and Agricultural Organization of United Nation (FAO, 2007). Annual statistics, Rome Italy.

Fresco, L. O., 1993. The dynamics of Cassava in Africa, an outline of research issues. COSCA working paper. P.9.

Igben, S. M. and Eyo, E. O., 2002. Agricultural economics: An introduction to basic concepts and primary principles: Bestprint Business Press, Uyo, Nigeria. P.82-88.

Lenis, J. I., Calle, F., Jaramillo, G., Perez, J. C., Ceballos, H. and Cook, J., 2006. Leaf retention and cassava productivity. Field Crops Research. 95:126-134.

Mbanasor, J. A. and Kalu, K. C., 2008. Economic Efficiency of Commercial Vegetable Production System in Akwa Ibom State, Nigeria: A Translog Stochastic Frontier Cost Function Approach. Tropical and Subtropical Agrosysstems 8(3): 313-318.

National Population Census (NPC)., 2006. Nigeria.

Nonso, J. O., 2012. The healthy richness of African Garden Eggs (Anara). Health and Life Africa: Healthy Living Initiative. Retrieved on 7th October, 2015 from htt://www.hala-hi.org at 10.15pm.

Nweke, F., 2003. New challenges in the cassava transformation in Nigeria and Ghana. EPTD International Food Policy Research Institute Discussion paper, 108. 2033 K Street NW Washington D. C.20006 USA.

Odoemenem, I. O. and Otanwa, L. B., 2011. Economic Analysis of Cassava Production in Benue State, Nigeria. Current Research Journal of Social Science. 3(5): 406-411.

Okike, I. K., 2006. Crop livestock interaction and economic efficiency of farmers in the Savanna Zone of Nigeria, Ph,D Thesis, Department of Agricultural Economics, University of Ibadan.

Omonona, B. T., 2009. Efficiency of resource-use in cassava production in Kogi State, Nigeria: implications for food security and environmental degradation. Retrieved on 30th August, 2015 from

http://www.cababstractsplus.org/absracts/searchResults.

Onubuogu, K., 2011. The Strength of our Business is in Distribution. ThisDay Business News. Retrieved on 27th August, 2015 from http://www.marketingworldmag.com at 1.30pm.

Otoo, J. A., 1994. Rapid Multiplication of Cassava, IITA Training Guide. P.51. IITA, Ibadan, Nigeria.

Oyegbami, T., Oboh, G. and Omueti, O., 2010. Cassava processors awareness of occupation and environmental hazards associated with cassava processing in South Western Nigeria. African Journal of Food, Agriculture and Nutrition Development. 10(1): 1982-2000.

Teklewold, H., Dadi, L., Yami, A. and Dana, N., 2006. Determinants of adoption of poultry technology: A double-hurdle approach. Livestock Research and Rural Development. 18(3): 356-388.

Umoh, G., 2006. Resource Use Efficiency in Urban Farming: Application of Stochastic Frontier Production Function. International Journal of Agriculture and Biology. 8 (1): 38-44.