



## **IMPACT OF CASSAVA PRODUCTION AND UTILIZATION ON POVERTY ALLEVIATION AMONG RURAL WOMEN IN DELTA CENTRAL SENATORIAL DISTRICT OF DELTA STATE, NIGERIA**

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### **ABSTRACT**

The study was designed to determine the impact of cassava production and utilization on poverty alleviation among rural women in Delta Central Senatorial District of Delta State, Nigeria. Five research questions and two hypotheses guided the study. The population comprised of 1256 registered women farmers. Sample size of 340 respondents was drawn using Cluster sampling technique. Data was collected from respondents using structured questionnaire and hypotheses were tested using Pearson moment correlation. The results of the analysis revealed that Cassava production and utilization alleviates poverty amongst rural women farmers in Delta Central Senatorial District through: the level of cassava produced; forms and extent of cassava is utilized; and the extent to which the rural women farmers have gained economically from cassava production activities. Recommendations made included that government should make policies that will provide land for the rural women farmers so that their cassava production will improve and thus result in increased income. Voluntary organization and the government should provide subsidies that can enhance cassava production in the study area.

**Key words:** Cassava production; utilization; poverty alleviation; rural women

### **INTRODUCTION**

Women play a significant role in agriculture, the world over. About 70% of the agricultural workers, 80% of food producers, and 10% of those who process basic foodstuffs are women and they also undertake 60 to 90% of the rural marketing; thus making up more than two-third of the workforce in agricultural production (FAO, 1995). In the last two decades, a lot of attention has been drawn to the important role of rural women to agricultural production in developing countries, especially, Nigeria. Prior to the realization that rural women constitute, an “economically active population”, they were largely not considered productive because they usually worked as unpaid family labour (Olawoye, 1998). The position and capability of women meeting the challenges of agricultural development cannot be overemphasized (Rahman, 2008). Women make significant contribution to food production and processing, but men seem to take more of the farm decisions and control the productive resources.

In Nigeria, women play a dominant role in agricultural production; their active participation in African agriculture is also not new. This was confirmed by a study financed by the UNDP, which revealed that women make-up 60-90% of the agricultural labour (Pala, 1976 and Lamming, 1983) depending on the region and that they produce two-thirds of food crops. Women in Africa have generally been known to play an important role in small-scale traditional agricultural production (Spencer, 1976 and Spiro, 1977). They therefore, need to be empowered economically to improve the standard of living of rural household for enhanced food security in Nigeria. Cassava production has been identified as a crop that is economically proficient to farmers and known to be a poverty fighter.

Cassava is grown on a wide range and can yield satisfactorily even in acidic soils where most other crops fails (Hahn, 1984). The crop has continually played very vital roles, which include income for farmers,

low cost food source for both the rural and urban dwellers as well as household food security (Nweke 1996). It also plays a major role in the effort to alleviate the food crisis in Africa. The Food and Agricultural Organization of the United Nation (FAO, 2004) estimated cassava production in Nigeria as at 2002 to be 34 million tonnes.

Traditionally, cassava is produced on small-scale family farms. The roots are produced and processed as a subsistence crop for home consumption and sometimes for sale in village and urban markets. For thirty to forty years, small scale producers in Nigeria have increased production of cassava as a cash crop primarily for urban markets. The shift from production for local consumption to production for urban consumers, livestock and industrial uses can be described as a transformation in cassava production. Under the transformation regime, high yield cassava varieties have been developed to increase yields while labour saving and improved processing technologies have been put in place thus reducing the cost of producing and processing cassava products. This has gingered serious competition with other food grains such as wheat, sorghum and rice for urban consumers, as cassava is now a notable substitute (Nweke, Dustan, Speneer and Lynam 2002; NEPAD, 2006).

The cassava transformation encompasses four stages, which indicates the specific importance: famine-reserve, rural food staple, livestock and industrial materials, and urban food staple. Beyond these, cassava occupies a prominent position in foreign exchange earning following the Presidential Cassava Initiative of the federal government of Nigeria (FGN, 2006). The status has been enhanced and more values added to the produce. There are multiple industrial uses of cassava and the avalanche of demand internationally for the products have made cassava production and processing an exit-route from the vicious cycle of rural poverty.

Rural poverty is a pervasive phenomenon, which eluded and evaded multifarious government policies and programmers. Thus, the government emphases have shifted from the eradication to alleviation. Poverty alleviation entails all the measures, methods, logics, programmers, techniques and policies put in place to reduce poverty and improve the standard of living of the people. The dominance of cassava-based food on the dietary table, the adaptability of the cultivars to diverse soil and climate conditions, the wide-spread cultivation coupled with the export potentials have made the crop a dependable crop for alleviating poverty sustainably.

When cassava is processed, value has been added to the produce. Some of the value-added forms in which it is utilized are garri, fufu, tapioca, ethanol, starch, cassava flour, cassava chips, glucose syrup, lafun, livestock feed, cassava-based adhesive, etc. Cassava processing could be manually done or could be mechanized. The manually prepared ones do not require sophisticated equipment. Cassava processing is important because it focuses on the reduction of the cyanogenic glycoside in the fermentation process and the fortification of the nutrition value of cassava for human consumption. The widespread uses of cassava following the processing have added more value to the produce. This has assisted in stemming the spate of poverty. Several researchers are of the view that cassava processing and the value added products have tremendously led to sustainable poverty alleviation (Nnadi and Akwiwu, 2006; Nwajuba, 1995).

Delta state is not an exception, as most farmers in the area cultivate cassava to sustain livelihood. Cassava being an important arable crop commonly cultivated by majority of farmers can be fully exploited in addressing the issue of poverty among farmers in Delta State. Literatures have shown that bulk of cassava production depends on rural women farmers. Therefore, the study examined the impact of cassava production and utilization on poverty alleviation among rural women in Delta Central Senatorial District of Delta State.

### **Objectives of the Study**

The study achieved the following objectives:

1. To examine the socio – economic characteristics of rural women in Delta Central Senatorial District
2. To identify the level of cassava produced by rural women in Delta Central Senatorial District
3. To evaluate the forms and extent of cassava utilization by rural women in Delta Central Senatorial District

4. To investigate the extent to which the rural women farmers have gained economically from cassava production
5. To examine the impact of cassava production and utilization on poverty alleviation among rural women in the area of study

**Research Questions**

The following research questions guided the research work:

1. What are the socio-economic characteristics of rural women in Delta Central Senatorial District?
2. What level of cassava is produced by rural women in Delta Central Senatorial District?
3. What are the forms and extent of cassava utilization by rural women in Delta Central Senatorial District?
4. What extent have rural women farmers gained economically from cassava production?
5. What impact does cassava production and utilization have on poverty alleviation among rural women in the area?

**Hypotheses**

The following hypotheses guided the study:

Ho<sub>1</sub>: There is no significant (relationship) difference between the rural women production levels and their poverty status

Ho<sub>2</sub>: There is no significant (relationship) difference between the rural women’s cassava utilization and poverty status

**METHODOLOGY**

Delta Central Senatorial District falls within the rainforest vegetation belt. The area exhibit a very high forest which is associated with tree crops such as oil palm and rubber. The area has well distributed green vegetation for pasturing. The major occupation of most inhabitants is farming. Major crops such as cassava, yam, plantain and cocoyam are grown in the area.

This study adopted survey research design. The population was one thousand two hundred and fifty six (1256) registered women farmers in the study area. Cluster sampling technique was used to obtain a sample of three hundred and twenty (320) women farmers. The process involved the selection of eight existing clans from twenty-one (21) clans officially recognized which is part of the local government councils existing within the area of study. The process of selecting the sample was done in such a way that all the clans and cells in each of the local government areas had equal and independent chance of being selected.

**Table 1: Clans and cells selected for the study**

S/N	Local Government Areas	Eight clans selected	Cells selected	Sample size
1	Ughelli North	Agbarho	Agbarho	40
2	Ughelli south	Effunruntor	Effunruntor	40
3	Ethiope East	Idjerhe	Jesse	40
4	Ethiope West	Kokori	Samagidi	40
5	Okpe	Udu	Egini	40
6	Sapele	Uvwie	Army barrack	40
7	Uvwie	Okpe	Amukpe	40
8	Udu	Okpe	Oha	40
			<b>Total</b>	<b>320</b>

Statistical tools such as mean, standard deviation and Pearson moment correlation were used for the study. Questionnaire was used as instrument for data collection. Items with mean weight of 2.5 and above were accepted while items with less mean weight were rejected.

## RESULTS AND DISCUSSION

Data collected for the study were analysed based on the objectives and hypotheses formulated for the study.

### Socio-economic characteristics of rural women in Delta Central Senatorial District

**Table 2: Distribution of respondents by socio-economic characteristics (N=320)**

Variables	Frequency	Percentage
<b>Age (years)</b>		
Below 34	50	15.6
35 – 39	61	19.1
40 – 44	63	19.6
45 – 49	102	31.9
50 – 54	28	08.8
55 and above	16	05.0
<b>Marital Status</b>		
Single	91	28.4
Married	183	57.2
Divorced	30	09.4
Widowed	16	05.0
<b>Religion</b>		
Christian	282	88.1
Islam	15	04.7
Traditional	23	07.2
<b>Educational level</b>		
No formal education	92	28.7
Adult literacy	50	15.6
Primary education	55	17.8
Secondary education	78	24.3
Tertiary education	45	14.0
<b>Sources of land</b>		
Owned/inherited	289	90.3
Rented/lease	31	09.7
<b>Farming experience (years)</b>		
1 – 3	73	22.8
4 – 6	81	25.3
7 – 9	92	28.8
10 – 12	68	21.3
Above 12	06	01.9
<b>Farm size (ha)</b>		
Less than 3	161	50.3
3 – 5	90	28.1
6 – 8	26	8.1
9 – 11	19	05.9
12 – 15	14	04.3
Above 15	10	03.1
<b>Monthly</b>		
<b>Income level (N)</b>		
Less than 20000	85	26.5
20000 – 40000	101	31.5
41000 – 60000	91	28.4
Above 60000	43	13.4

The result in Table 2 indicated that majority of the women farmers age were below 49 years which shows the youthfulness of the farmers and they are likely to be amenable to changes and education. The age is also an incentive for lasting development of sustainable cultural practice that can enhance production (Fakoya, Agbonlahor and Dipeolu, 2007). It is evident the results that most of the respondents were married (52.2%). It also was found that most of the respondents were Christians (88.1%). The data also shows that a high proportion of women farmers (71%) had completed one form of formal education. Adequate education enhances farmers' level of production, it is therefore expected that farmers would be inclined to sustainable cassava production. As observed by Olawoye (1994), there is significant difference between owned/inherited land and rented/lease land particularly for women; this will enhance cassava production as most of the respondents need not pay for land to cultivate. However, final decision on land investment is determined by the male household head. Response on farming experience showed that 73% of women farmers have above 3 years experience on cassava production. The result shows that most of the women farmers have been in farming profession for quite some period of time and are not novice in farming activities especially in cassava production. Experience as a risk management factor, Ridler and Hishamunda (2001) agreed that new farmers are at a higher risk compared to experienced farmers. The results further reveal that most of the respondents are small scale cassava farmers as most of them have farm size less than 3ha. This can affect cassava production negatively. Monthly, majority (31.5%) have income level ranging between N20, 000 to N40, 000 while only 13.4% have above N60, 000 income level. By implication, some of the farmers' financial commitment may not be met.

**Level of cassava produced by rural women in Delta Central Senatorial District**

The result in Table 3 shows that most of the respondents agreed that the cassava they produced is enough for their family consumption and for sale. The result also showed that 66.9% produced above 3 tonnes of cassava tubers after harvest. This indicated that the women farmers produced an appreciable level of cassava from their farm activities. The result is in line with Okorji, Eze and Eze (2003) who stated that women play a major role in cassava production and describes cassava as women's crop. Also, IFAD (1994) posited that women play a central role in cassava production, contributing a high a percentage to total agricultural labour.

**Table 3: Mean responses of women farmers on cassava production levels in Delta Central senatorial District (N=320)**

S/N	Statement items	Mean	S.D	Remark
1	The amount of cassava I produce is not enough for my consumption	1.03	0.62	Disagreed
2	I produce cassava at small scale only for my family	2.09	0.74	Disagreed
3	I produce cassava in small scale for my consumption only	2.03	0.77	Disagreed
4	Surplus resulting from my small scale production are sold	2.68	0.68	Agreed
5	I produce cassava in large scale only for commercial use	2.63	0.81	Agreed
6	Surplus resulting after sells is converted to family use	3.31	0.86	Agreed
7	My production increases annually	3.01	0.83	Agreed
8	There is usually glut during harvest period	2.51	0.87	Agreed
10	There is scarcity of cassava during off-season	2.23	0.66	Disagreed
11	Level of cassava production (tonnes)		Frequency	Percentage
	0 – 3		106	33.1
	4 – 6		92	28.8
	7 – 9		86	26.9
	Above 12		36	11.2

**Forms and extent of cassava utilization by rural women in Delta Central Senatorial District**

Table 4 shows that the respondents agreed that all the statement items are forms and extent cassava is utilized by rural women in Delta Central Senatorial District. This indicated that cassava is used in preparing multiple foods which are consumed almost on daily basis. Apart, from consumption, it is used as medicine (peelings), adhesive and to feed livestock. The result agrees with the findings of Ebukiba (2010) who stated that cassava is a very important staple food consumed in different forms by millions of Nigerians. Also, Okolo (1986) in consumption pattern study stated that southeastern Nigerians eat cassava in various forms in daily basis. IITA (2003) stated that raw cassava roots and leaves are not palatable, thus there is need to process its roots into various products such as gari, fufu, lafun (cassava flour) and starch. Thus, cassava requires more processing, but requiring sophisticated tools and equipment and much capital (Ajao, 2000).

**Table 4: Mean responses of rural women farmers on forms and extent of cassava utilization in Delta Central Senatorial District (N=320)**

S/N	Statement items	Mean	S.D	Remark
1	I consume cassava in the form of garri (fried granule) when prepared with hot water and eaten with soup	3.31	0.63	Agreed
2	I consume cassava in the form of garri when soaked with water	2.81	0.71	Agreed
3	I consume cassava in the form of starch (Usi) when mixed with oil and heated	2.56	0.61	Agreed
4	I use cassava in the form of starch for dry cleaning	3.01	0.53	Agreed
5	I consume baked foods made from cassava flour	3.51	0.71	Agreed
6	I consume peeled cassava which might be boiled or roasted	2.50	0.81	Agreed
7	I consume cassava processed into chips (Tapioka)	2.81	0.65	Agreed
8	I consume cassava processed to Akpu; which is eaten with soup	3.08	0.68	Agreed
9	Cassava is used to produce alcohol or spirits through fermentation process	2.72	0.72	Agreed
10	Spirits produced with cassava are used as preservatives in foods and wines	2.83	0.74	Agreed
11	Starch produced from cassava is used as adhesives	2.91	0.81	Agreed
12	Peelings from cassava tuber is used as medicine	3.03	0.72	Agreed
13	I consume cassava processed akple (cassava flour mixed water and oil and then fried)	2.52	0.75	Agreed
14	Sweet cultivars of cassava are used to feed livestock	3.51	0.76	Agreed
15	Cassava flour when mixed with cotton seed is used as feed for livestock	3.03	0.73	Agreed
16	Fried cassava chips in red palm oil is used as baits to catch rodents in the farm	2.72	0.62	Agreed

**Extent to which rural women farmers have gained economically from cassava production**

The result in Table 5 shows that the respondents agreed to most of the statement items. This indicated that rural women farmers benefits economically from cassava production. Cassava production is seen as a source of livelihood to rural farmers especially women. The result tallies with the findings of Okwuche and Obinne (2010); they found out that women play a major role in the production of food crops and also undertake activities such as trades to earn income. Akorede (2004) opined that cassava production has attained its potential of increasing farmers' income and improving their standard of living.

**Table 5: Mean responses of rural women farmers on economical gains of cassava production (N=320)**

S/N	Statement items	Mean	S.D	Remark
1	Cassava production has been a source of employment	2.51	0.63	Agreed
2	Income derived from cassava production helps to solve most financial problems in the family such as house rent, school fees, clothing and others	3.31	0.72	Agreed
3	Cassava derived foods are consumed daily by my family	3.56	0.74	Agreed
4	It serves as a means of exchange to other forms of foods	2.51	0.78	Agreed
5	Cassava production provides indirect form of employment to non-farmers	2.61	0.68	Agreed
6	Government provides subsidy to cassava farmers more than other crop farmers	2.03	0.54	Disagreed
7	Different types of food can be derived from cassava at same time	3.45	0.67	Agreed
8	Cassava can be exported to generate more income	3.01	0.73	Agreed
9	Cassava serves as raw material for agro-allied, pharmaceutical industries and others, thereby increasing its worth in the market	3.00	0.68	Agreed
10	Cassava women farmers are usually supported by international organizations such as IITA, FAO and others	3.12	0.83	Agreed
11	Cassava has become a very popular crop replacing other traditional staples like yam, gaining ground as a crop against hunger	3.00	0.70	Agreed
12	Cassava has a long shelve-life especially in processed form	3.31	0.60	Agreed
13	Marketing arrangement for cassava and cassava based products are devoid of government intervention, therefore operates without distortion	3.11	0.74	Agreed
14	Cassava can be easily stored	3.12	0.81	Agreed
15	Improved cassava varieties produces high yield	2.71	0.73	Agreed
16	There is good market for cassava	2.51	0.79	Agreed

**Impact of cassava production and utilization on poverty alleviation among rural women in the area of study**

The result in Table 6 shows that the respondents agreed to most of the statement items. The result indicated that cassava production and utilization assist in alleviation poverty among rural women farmers through enhancing their food preference and solving daily needs of the family. The respondents are also of the view that the income realized from cassava production and utilization is used to take care of their immediate needs. Fakoya, Banmeka, Ashinmolo and Fapojuwo (2010) opined that farmers' income can be optimized through cassava production and utilization with a resultant effect on meeting the basic needs of his family.

**Table 6: Mean responses of rural women farmers on impact of cassava production and utilization on poverty alleviation among rural women (N=320).**

S/N	Statement items	Mean	S.D	Remark
1	Women farmers involved in cassava production are self reliant	2.64	0.82	Agreed
2	Registered women farmers have access to loans	2.01	0.87	Disagreed
3	Cassava production and utilization has attracted adult education and extension services to rural areas	1.82	0.52	Disagreed
4	Women farmers have access to basic amenities	1.51	0.73	Disagreed
5	Women farmers are faced with gender stereotype which mar them from social and political structure	3.04	0.73	Agreed
6	Women cassava farmers are economically stable	2.07	0.68	Disagreed
7	Cassava production provides a cheaper source of raw material in producing quality good like bread, cake and others	3.04	0.71	Agreed
8	Cassava production and utilization enhance food preference	3.00	0.81	Agreed
9	Women farmers can pay children's school fees	3.10	0.76	Agreed
10	Women farmers can purchase of clothing material	3.00	0.62	Agreed
11	Women farmers can pay of house rent	3.10	0.67	Agreed
12	Women farmers can Purchase household utensils/needs	2.72	0.55	Agreed
13	Women farmers can pay for health care services	3.02	0.67	Agreed
14	There is increase in trading activities	2.81	0.61	Agreed
15	Multiple products produced from cassava have led to increase in industrial output	2.50	0.63	Agreed
16	Multiple products produced from cassava provides market to machine manufacturing companies	3.20	0.85	Agreed
17	Increased women farmers involvement in economic and social organization	3.10	0.73	Agreed
18	Increased household food security	2.51	0.82	Agreed
19	Increased acreage cultivation	3.14	0.57	Agreed
20	Increase women farmers' access to agricultural information	2.14	0.54	Disagreed

**Hypothesis 1**

Ho<sub>1</sub>: There is no significant (relationship) difference between the rural women production levels and their poverty status

**Table 7: Pearson's product moment analysis on the mean responses of rural women farmers on the relationship between the rural women production levels and poverty status**

Variables	$\Sigma x^2$	$\Sigma y^2$	$\Sigma xy$	R	Critical value of R
Production levels (x) Poverty levels (y)	54.93	57.77	57.05	0.53	0.46

Table 7 shows that the R-value is greater than the critical value of R at 0.05 level of significance. Therefore, the stated null hypothesis is rejected. Hence there was relationship between cassava production levels and poverty status of rural women farmers in the study area. The result indicated that increase in



production levels of cassava will alleviate poverty among rural women. This was possible as both variables had positive relationship.

**Hypothesis 2**

Ho<sub>2</sub>: There is no significant (relationship) difference between the rural women’s cassava utilization and poverty status

**Table 8: Pearson’s product moment analysis on the mean responses of rural women farmers on the relationship between the rural women’s cassava utilization and poverty status**

Variables	$\Sigma x^2$	$\Sigma y^2$	$\Sigma xy$	R	Critical value of R
Cassava utilization (x) Poverty level (y)	77.51	57.77	65.60	0.72	0.46

Table 8 shows that the R-value is greater than the critical value of R at 0.05 level of significance. Therefore, the stated null hypothesis is rejected. There is positive relationship between rural women’s cassava utilization and poverty status. This implies that rural women’s cassava utilization will translate to an increase in poverty alleviation amongst rural women farmers in the study area. Cassava being an important arable crop commonly cultivated by majority of farmers can be fully exploited in addressing the issue of poverty among farmers in Nigeria (Fakoya et al, 2010).

**CONCLUSION**

Based on the findings of the study, the following conclusions were made: Cassava production and utilization alleviates poverty amongst rural women farmers in Delta Central Senatorial District through: the level of cassava produced; forms and extent of cassava is utilized; and the extent to which the rural women farmers have gained economically from cassava production activities.

**RECOMMENDATIONS**

Based on the findings of the study, the researcher made the following recommendations:

1. The government should make policies that will provide land for the rural women farmers so that their cassava production will improve and thus income.
2. Voluntary organizations and the government of Delta State should provide subsidies that can enhance cassava production in the study area.

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