

## Effects of Cassava Processing and Value Added Products on Sustainable Poverty Alleviation in Ikwuano Area of Abia State Nigeria.

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**Abstract:** The study examined the effects of cassava processing and the value added products on sustainable poverty alleviation as perceives by rural households in Ikwuano L.G.A of Abia State. The objectives were to ascertain the perception of the farmers towards cassava processing as a strategy for poverty alleviation and ascertain the effects of cassava processing and value-added products on sustainable poverty alleviation. A set of semi-structured questionnaire was administered to 160 randomly sampled farmers for data collection. The result showed that the processing methods of cassava in the area included grating, pressing, sieving, fermenting, dewatering, extracting and roasting. The forms cassava available included garri, fou-fou, livestock feed, starch, flour and tapioca. The constraints to the processing included insufficiency of tubers for processing, drudgery, high cost of equipment, poor technological information, poorly stilled technicians and offensive odors. The result further showed that the effects of cassava processing and value-added products on sustainable poverty alleviation were increased acreage under cultivation, income, employment, increased household food security, increased demand for cassava products and variety in cassava consumption. It was however recommended that research into the constraints de funded by governmental and non-governmental organizations for improvement on the processing techniques in addition to training technicians on the maintenance of the processing equipment.

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### 1. Introduction

Cassava {*Manihot spp*} of the family Euphorbiaceae, is one of the most important root and crops grown in Nigeria and most other countries of low land and sub-humid tropics. It is a preferred staple food that is highly cherished by many people in Nigeria because of its attributes. It is within the reach of rural people, tolerates some diseases, adapts to poor soil on which many other crops fail and a relatively high yield. Further, it is easily propagated by stem cuttings and resists drought making it a famine-reserve crop. It can be planted at any time of the year, provided there is enough moisture for stem cuttings to take root. Cassava is amenable to various processing forms {IITA, 2004}. The concept “cassava processing” entails the special treatment of the cassava root before it is consumed to make it last longer. 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 scale in village and urban markets. Over the thirty to fourth years, small holders 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 cassava transformation. Under the transformation, 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 food grains such wheat, sorghum and rice for urban consumers, as cassava is now notable substitute {Nweke *et al* 2002 NEPAD, 2006}.

The cassava transformation encompasses four stages, which indicate the specific importance: famine-reserve, rural food staple, livestock and industrial materials, urban food staple. Beyond these, cassava occupies a prominent position in foreign exchange earning following The cassava initiative of the federal government of Nigeria {FGN, 2006}. The status has been enhanced and more values added to the produce. There are replete 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.

Sustainability is a system that, over long term, enhances environment quality and the resources base in which agriculture depends, provides for basic human food and fiber needs, is economically viable, socially acceptable and enhances the quality of life for farmers and society as a whole (US Society of Agronomy, 1989).

When cassava is processed, value has been added to the produce. Some of the value-added products are gari, fou-fou, 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. Fermentation is accomplished in one or two ways: stacking in heaps or soaking in water. Fermentation in heap has the advantage of improving the nutritive value of the product. Most of the nutrients that are lost by soaking are retained when fermentation is done by heaping. The fermentation whether in heap or water, influences the taste of the final product. (Okorji *et al*, 2005; FAO, 2007).

Cassava can be grown by the poorest farmer which implies that it is any ones crop. As a food security crop it holds wonderful potentials for the transformation of the countryside (Nnadi and Akwiwu, 2006). This has given rise to the enhancement of the status. Currently, the cassava initiative of the government of Nigeria has projected to the limelight the multifarious uses of cassava. As a consequence. It has become a viable export crop, rolling in foreign exchange and improving the livelihood of the rural dwellers.

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, Nwajiuba, 1995). These claims could be unfounded as these are no statistical back up. The need therefore arises to ascertain empirically the effects of cassava processing and value-added products on sustainable poverty alleviation. The non-existence of scientifically verifies data has given rise to poor assessment of the real impact of cassava in alleviating rural poverty. This has engendered knowledge gap which need to be filled.

Again, the various forms of the products available in the study area have not been documented. In the same manner, the sources of information available, processing methods used and the dynamics of the use are unknown. These have not facilitated the design of intervention measures and advocacy. In another vein, apt government policies and programmes have not been put in place, as the real processors of the produce and their scope of operation have not been ascertained. This lack of benchmark information has not augured well for the socio-economic transformation of the farmers. The broad objective of the study was to determine the effects of cassava processing and value added products on sustainable poverty alleviation. The specific objectives were to: (i) identify the cassava processing methods used by respondents in the study area, (ii) determine the perception of respondents towards cassava processing as a strategy for poverty reduction, (iii) identify the various forms of processed cassava available to respondents (iv) describe the effects of cassava processing and value – added products on poverty alleviation.

The study area Ikwuano Local Government Area of Abia State. It is made up of for clans which comprise several villages/communities. These clans include: Ibere, Ariam, Oloko and Oboro. Each of these clans are made up of four autonomous communities. They include Ibere clan: Akor, Otuzo, Oruo and Isiala-Ibere. Ariam clan: Usaigwe, usak, Ikemba and Igwebu-Ike. Oloko clan: isiala-Ahaba, Ahaba-Ukwu, Awom-la-uzi and Oloko. Oboro clan: Amawom, Ibeuzo, Awomnebo and Agbalozuo. In all there are sixteen (16) autonomous communities in Ikwuano L.G.A of Abia State. Ikwuano is located in the South-easter part of the state. It is bounded on the north by Isiukwuato L.G.A, north-west by Obowo L.G.A of Imo State, south-west by Obioma Ngwa and Bendel L.G.A in the east, all located in Abia State. Ikwuano has a population of 61,214, with male having 28,840, and female 23,374 (FGN, 2009). Majority of the people are farmers. Crop production is prominently practiced and annual staples such as yam, cassava, maize and plantain are mainly grown. Vegetables such as fluted pumpkin, Okra, tomatoes, bitter leaf, pepper and perennial trees such as oil palm, orange, cola, raffia palm and guava are also grown. Mixed farming is also practiced but the amount of livestock kept is generally small. Poultry, piggery, sheep and goats are reared.

Muilti-stage random sampling technique was used to sample respondents for the study. The first state comprised random sampling of four communities from the 16 communities that make up Ikwuano L.G.A. (25%). The second stage comprised a random sampling of 4 villages from each of the communities. The third stage comprised was the random sampling of ten (10) cassava-farming households from each of the four

villages to give a sample size of 160 respondents. The cassava farmers were sampled using a sample frame, that is, the list of all the cassava farmers in the area compiled by the resident extension agent. However, only 131 respondents filled the instruments correctly and were therefore found useable for analysis.

Two sources of data were used in the study—primary and secondary sources. The primary sources were the use of semi-structured questionnaire and observation of the processing sites. Questions revolved

around the socio-economic characteristics of the farmers, cassava processing methods, etc. The secondary sources included information from past research projects, journals, text books, periodical, newsletters and relevant documents from the state Ministry of Agriculture and Agricultural Development Programme (ADP). Descriptive statistical tools such as percentage count, simple tabulation, and mean were used to describe and achieve objectives 1 – 4.

### Cassava Processing Methods Available

Table 1 – Cassava processing methods available in the area.

Processing Methods	Frequency	Percentage
Grating	98	74.8
Milling	87	66.4
Fermenting	89	68.0
Drying	86	65.6
Dewatering	90	68.7
Pressing	96	72.5
Extracting	43	32.8
Roasting	87	66.4
Sieving	93	71.0

Table 2 – Perception towards the processing of cassava.

Perception	SA+A	U	D+SD
Cassava processing is a waste of time	-	26 (19.8%)	105 (80.2%)
It cost much to embark on processing.	94 (71.8%)	16 (12.2%)	21 (16%)
It is safer, quicker and cheaper to consume or sell the produce without processing	19 (14.5%)	16 (12.2%)	96 (73.3%)
Processed products would not yield more income.	34 (26%)	-	97 (74%)
Processed products can help improve farm income	109 (83.2%)	22 (16.8%)	-
I do not like the idea of processing cassava into other forms apart from four-fou and garri.	21 (16%)	-	110 (84%)
Processing does not really add any value to the produce.	21 (16%)	-	110 (84%)
I cannot agree to any of the above because I do not produce cassava in large quantity.	21 (16%)	-	110 (84%)

**Note:** SA – Strongly Agree, A – Agree, U – Undecided, D – Disagree and SD – Strongly Disagree.

Table 1 shows that a total of 74.8 percent indicate grating, while 66.4 percent indicate milling. Also, 68 percent indicate fermenting while 65.6 percent indicate drying. A total of 68.7 percent indicate dewatering, 72.5 percent indicated pressing, 32.8 percent indicated

extracting, and 66.4 percent indicated roasting while 71 percent indicated sieving. The available processing methods reflect the diverse forms of utility added to cassava. These leave the farmers with opportunities of choice in their menu, add variety and increase their

earnings. The avalanche of the processing forms available could be attributed to the increased campaign on cassava production and processing by the government. The people themselves were convinced on the enormous potentials following the processing into different form, which made for variety, increased income, good preservation, etc.

#### **Perception of Farmers Towards Processing of Cassava**

The farmers' rating of their perception of cassava processing using percentages are discussed here.

From table 2, 80.2 percent of the farmers disagreed with item on cassava processing is waste of time, 73.3 percent disagreed that it is safer, quicker and cheaper to consume or sell the produce without processing. Also, 74 percent disagreed with the item on processed would not yield more income. About 84

percent each disagreed with the items on I do not like the idea of processing cassava into other forms apart from fou-fou and garri, processing does not really add any value to the produce and I cannot agree to any of the above because I do not produce cassava in large quantity.

Again, 71.8 percent of the farmers agreed with the items on it cost much to embark on processing and 83.2 percent also agreed that processed cassava products could help improve farm income.

The implication of the various responses are that the farmers now appreciate better the importance and potentials of cassava initiative and the increased emphasis in production with logistic support. The study of Nnadi and Akwiwu (2005) is in agreement with the result and this confirms the statement that the status of cassava is presently enhanced.

#### **Various Forms of Processed Cassava Available to the Farmers**

Table 3 – Forms of processed cassava available.

<b>Processing Methods</b>	<b>Frequency</b>	<b>Percentage</b>
Fou-fou	98	74.8
Garri	105	80.2
Tapioca	69	52.7
Lafun	8	6.1
Chips	60	45.8
Starch	62	47.3
Ethanol	5	3.8
Adhesives	9	6.9
Livestock feed	87	66.4
Glucose	5	3.8
Flour	76	58.0

Table 3 shows that 74.8 percent indicated fou – fou, 80.2 percent indicated garri, 52.7 percent indicated tapioca, 6.1 percent identified with lafun, 45.8 percent indicated chips, 47.3 percent indicated starch, 3.8 percent identified glucose while 58 percent indicated for flour. The various forms available increased in number following the emphasis on cassava and the product. The forms available are inspirations on the production. The farmers why is producing and there are marketing prospects.

#### **Effects of Processed Products on sustainable Poverty Alleviation**

From table 4, a total of 51.1 percent of the farmers indicated increased acreage under cultivation, 59.5 percent increased farmers' income, 58 percent identified with increased demand for cassava and the products, 54.2 percent indicated increased marketing outlet for cassava. Also, 68.7 percent indicated generation of employment, 75.6 percent indicated increased household food security, 74.8 percent

indicated that it is has improved the quality of food from cassava. About 55.7 percent noted that it has introduced variety in cassava consumption, 35.1 percent identified with increased farmers' access to agric information while 39.7 percent indicated for increased farmers' involvement in social organization. The distribution is not surprising as one of the major crops cultivated in the rural area is cassava. The diverse uses and demands for the products would transform the rural economy even as the farmers' standard of living is improved. The cassava processing methods available include grating, milling, fermenting, drying, dewatering, pressing, extracting, roasting and sieving. The forms of processed cassava available include fou-fou, garri, tapioca, lafun, chips, starch, ethanol, adhesives, livestock feed, glucose and flour.

The result further shows that the farmers perceived the process as expensive but agreed that processed cassava improved income, added value to the cassava produce and inspired their production

activities. The processing of cassava impacted on the farmers by increasing acreage for cassava production increased income, increased marketing outlets,

household food security, added variety to family menu, improves access to technological information and involvement in social organizations.

Table 4 – Processed products impact on sustainable poverty alleviation.

Options	Frequency	Percentage
Increased acreage cultivation.	67	51.1
Increased farmers' income	78	59.5
Increased demand for cassava and the products	76	58.0
Increased marketing outlet for cassava	71	54.1
Generates employment for rural dwellers	90	68.7
Increased household food security	98	75.6
Improved the quality of food from cassava	93	74.8
Introduced variety in cassava consumption	93	55.7
Increase farmers' access to agricultural information.	46	35.1
Increased farmers' involvement organization	52	39.7

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