

RESEARCH ARTICLE

Contributions of Women in Cassava Production and Processing Activities among Farmers in Delta State, Nigeria

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Received: 10-10-2022; Revised: 25-11-2022; Accepted: 01-01-2023

ABSTRACT

The paper investigated women's contributions in cassava production and processing activities among farmers in Delta State, Nigeria. The specific objectives of the study were to ascertain the roles of rural women in cassava farming operation, determine socioeconomic benefit associated with cassava farming and the factors working against women's participation in cassava farming activities. Multistage sampling procedure was used in this study. Three local governments out of the 25 local governments in the State were used for the research, based on their activities on cassava production. One hundred and twenty farmers were randomly sampled for the study. Data collected were analyzed using frequency, percentage, and mean score. Findings showed that majority (71%) of the farmers were women while 23% were men. The mean age, years of farming experience, household size, and farm size of the farmers were 38 years, 8 years, three persons, and three hectares, respectively. In terms of cassava production, it was observed that 79%, 71%, and 69% of the women were involved in cassava planting, weeding and harvesting while men highly contributed to land preparation and ridge making. The processing of cassava into Akpu (foo-foo), garri, and tapioca (abacha) was dominated by the women while men contributed significantly in grinding (71%) and pounding (70%) of cassava. Increases in household food security and income appreciation were some of the benefits derived from cassava farming by the farmers. The challenges faced by the women were inadequate laborers ($M = 3.25$), high cost of processing and storage equipment ($M = 3.05$), lack of access to bank credit ($M = 2.17$), climatic factor ($M = 2.39$), time consuming ($M = 2.05$), and inadequate extension services ($M = 2.02$). This paper recommended that women should be encouraged to form unions to enable them access loan for their needs. Farmers should also be encouraged to adopt agricultural mechanization through government support. Government at all levels should provide subsidies for processing and storage equipments to farmers to enable them have access to them.

Key words: Cassava farming, cassava processing, gender role, production

INTRODUCTION

Agriculture is essential for sustainable development and poverty reduction; it is a powerful means for inclusive growth. Agricultural growth has been the

main instrument of rural poverty reduction in the most developing countries, and not surprising, it has also had a much more direct impact on hunger than general economic growth (World Bank, World Development Report 2008; Binswanger-Mkhize *et al.*, 2009). No country sustained a rapid transition out of poverty without raising productivity in its agricultural sector (Timmer and Akkus, 2008). While in the long run, the way to increase rural

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productivity is to raise urban productivity (unless the nonagricultural economy is growing, there is little long-term hope for agriculture) and out-migration to the growth areas, the historical record shows the important role agriculture plays in stimulating growth in the non-agricultural economy in the short to medium term (Barrett *et al.*, 2010).^[1-10]

Male dominated social structures and political systems; women do not derive equal access to land, technology, education, and resources. The problem of food shortages in Nigeria has been attributed to an acute little participation of male in some crops farming and a shift of farm responsibilities to the women. There has also been a great disparity between women and men in the size of land holdings. Based on this, FAO Director-General Jacques Diouf generally states, women make crucial contributions in agriculture and rural enterprises in all developing country, as farmers, workers, and entrepreneurs (McKenna, 2014). Their roles vary across regions but, everywhere, women face gender-specific constraints that reduce their productivity and limit their contributions to agricultural production, economic growth, and the well-being of their families, communities, and countries. A great deal of the food insecurity in Nigeria can be traced to the challenges women face engaging in small-scale rural agriculture.

Cassava and its based products are the most important food for the people of Niger Delta, Nigeria. Cassava is almost a daily menu in households especially in the area (Chinasaokwu, 2012). It is widely grown in Nigeria and is sources of income and food to millions of farmers, processors, and traders. Cassava was one of the crops that have received massive attention from the Nigerian government since 2011 as efforts are made to industrialize the agricultural sector and reduce dependence on crude oil (Odunze, 2019). Nigeria became the world's biggest producer of cassava in 2013 accounting for more than 20% of total cassava production in the world (Food and Agricultural Organization, 2014). Nigeria ranks first in cassava and yam production in the world with an output of 57 million tons and 44 Million tons, respectively, in 2016. According to FAOSTAT (2016), the potential of the cassava industry in Nigeria remains highly untapped in many ways. African Development Bank (ADB) (2015) said that the Nigerian cassava industry can potentially yield annual revenues above 28 billion Naira if it

maximizes its production capacity and minimizes limiting constraints to small-holders. Industrial processing of cassava has four rapidly growing emerging markets (Asante, 2013); the ethanol market (food grade), the High-Quality Cassava Flour market, the starch market, and the chips/pellet market. Each of these products is traded in large quantities in the international and local market.

The knowledge of gender contributions to food output in rural households in Nigeria is important, because it will ensure effective allocation of production resources within the rural households. The attendant increase in agricultural production arising from this will increase the farm output of the households and improve their standard of living. A lot of studies have indicated that rural development policies directed at the household may not have their intended effects or produce unintended negative outcomes, unless the role and position of gender in rural households are explicitly taken into account (Chinasaokwu, 2012). Women in Nigeria form an active and reserve labor force but they rarely own the means of productions (Chinasaokwu, 2012).

The position of women in meeting challenges of agricultural development cannot be over emphasized. Rural women contribute between 40% and 60% of all hours spent in agricultural production and processing. They also undertake 60–90% of the rural agricultural products marketing, thus providing more than two-thirds of the workforce in agriculture (Soubh, 2006). Olawoye (2000) reported that 97% of women in Oyo State were involved in weeding (97%), processing (92%), transportation (91%), marketing (79%) planting (50%), and harvesting (35%). They are also involved in collection of fuel wood and water, caring for family members and maintaining their homes. Many of these activities are not defined as economically active employment but they are essential to the well-being of rural households.

Women play a key role in food production and food security on family farms either as paid or unpaid laborers on other farms and agricultural enterprises (Ahmed and Maitra, 2010). Rural women are also known to be fully involved in all operations of farming such as planting, thinning, weeding, fertilizer application, harvesting, storing, processing, and marketing (Mybada, 2000; Adisa *et al.*, 2013). Over the years, different international bodies recognized the role of women in agriculture and sustainable

rural development such as the findings of a study by the United Nations Development Program. Despite government interventions, the full potentials of women have not been exploited in rural development planning efforts in Nigeria. Women are responsible for half of the world's food production and between 60% and 80% of the food in most developing countries including Nigeria (Adisa *et al.*, 2013).

Irrespective of the important roles women play in family farming in Nigeria, they are rarely given attention in the area of training and visitation by extension agents with improved technologies. Banks hardly grant loans to them and are rarely reached with improved seeds, fertilizer, and other farm inputs (Damisa *et al.*, 2007). These conditions have placed the women in a vicious cycle of poverty and are highly disadvantaged in economic empowerment for agricultural development. Agricultural policies on the whole still do not address the needs of rural women farmers adequately (Mbah *et al.*, 2016). Intensifying efforts to improve the cultivation and processing of cassava will improve the lives of many households in Delta State. This therefore raises the following pertinent questions: What are socioeconomic characteristics of rural women in family farming? What are contributions of rural women to family farming? Specifically, the objectives were to: Describe socioeconomic characteristics of rural women in cassava farming in the study area; ascertain contributions of rural women in cassava farming in Delta State, determine Socioeconomic benefit associated with cassava farming and identify the constraints faced by women in cassava production and processing activities in the area.

METHODOLOGY

The study area is Delta State of Nigeria. The state covers a landmass of about 18,050 km² (6970 sq mi), of which more than 60% is land. The state lies approximately between 5°00' and 6°45' E and 5°00' and 6°30' N. It is geographically located in Nigeria's Midwest, bounded in the north and west by Edo State, the east by Anambra, Imo, and Rivers States, south-east by Bayelsa State, and on the southern extreme is the Bight of Benin which covers about 160 km of the state's coastline. Delta State is generally low-lying without any remarkable

hills. The state has a wide coastal belt inter-lace with rivulets and streams, which form part of the Delta. There are 25 local government in the State with head quarter at Asaba (Isorhovoja, 2015).

Delta State was carved out of the former Bendel State on August 27, 1991. The state was actualized following agitations for the realization of a separate distinct State by the peoples of the old Delta Province. There was yet another State request proposed as "Niger State" comprising the Asaba and Aboh divisions of the old Midwest region. The then Military President, Gen. Ibrahim Babangida, recognized Delta State but chose "Asaba" a prominent town within the "Northwestern lower Niger" as capital city. The proposed capital was a virgin land in the heart of the two constituent divisions that constitutes the Northwestern lower Niger. Delta State was once integrated in the Mid-western state from 1963 to 1976 and later Bendel state, from 1976 to 1991. The name "Bendel" (Ben-Del) coined from the old Benin and Delta Provinces of Western Region-Delta to reflect the integration of Benin and Delta provinces. Multistage sampling techniques were used for the study. Three local governments out of the 25 local governments in the State were used for the research based on their activities on cassava production. Here, Aniocha North, Ndokwa East, and Ndokwa West were selected. These gave a total of three local government used for the study. Two communities per L.G. were purposefully selected due to their active participation in farming activities. Isele Asagba and Isele Ukwu, from Aniocha North; Obi-Igbo and, Ashaka from Ndokwa East; Amoji and Ogbe-Ogume from Ndokwa West were used. This gave a total of six communities used for the study. 20 farmers each were randomly sampled from each community and this gave a total sample size of 120 farmers that used for the work. Data used for this research were collected through a structured questionnaire. Data collected were analyzed using, frequency, percentage, and mean score.^[11-20]

RESULTS AND DISCUSSION

Table 1 indicates that 33.3% of the famers in the area who involved actively in cassava faming were between the age of 36–45, while 29.2% were farmers whose age were between 26 and 35 years. The average

Table 1: Socioeconomic analysis of cassava farmers in Delta state

Variables	Frequency	Percentage	Mean
Age			
18–25	12	10.0	38
26–35	35	29.2	
36–45	40	33.3	
46–55	33	27.5	
Sex			
Male	34	28.3	
Female	86	71.7	
Marital status			
Single	25	20.8	
Married	50	41.7	
Widowed	15	12.5	
Divorced/repeated	30	25.0	
Household size			
1–2	31	25.8	3.0
3–4	60	50.0	
5 and above	29	24.2	
Levels of education			
Non- formal education	35	29.2	
Primary school	27	22.5	
Secondary School	20	16.7	
OND/HND	15	12.5	
First degree and above	23	19.2	
Farming experience			
1–3 years	10	8.3	8 years
4–9 years	32	26.7	
7–9 years	46	38.3	
10 and above	32	26.7	
Source of labor			
Family	25	20.8	
Hired	70	58.3	
Exchange	25	20.8	
Source of agro input			
open market	35	2.9	
Friends and neighbor	29	2.42	
ADP	30	25.0	
Ext. Agent	26	21.7	
Access to extension service			
Yes	80	66.7	
No	40	33.3	
Access to credit			
Yes	35	35	
No	85	70.8	
Source of landownership			
Inherited	60	50.0	
Purchased	15	12.5	
Rented	15	12.5	
Gifted	30	25.0	
Farm size			
0.5–1 ha	11	9.2	3 ha
2–3 ha	80	66.7	
4–5 ha	29	24.2	

Field survey, 2020

age of the cassava farmers was 38 years. This implies that younger farmers in the area participated more in agriculture than older people due to the benefits associated in cassava farming recently. This finding disagreed with Mgbakor and Nwamba (2013) who said in their study that younger farmers were no longer participated more in agriculture due to labor involved. Moreover, 41.7% of the farmers were divorced/separated while 12.5% of the farmers were widows. The average household size and years of farming experience of the farmers were 3 person and 8 years, respectively. This implies that the farmers have a moderate household size and years of farming experience. These moderate family size and farming experience are expected to influence cassava production positively since family size constitute partly to source of labor and experience is also a part of farming productivity. As indicated in Table 1, 29.2% of the farmers had no access to formal education ranging from primary school to higher institution. In the same vein, 22.5% of the average farmers completed primary education, 16.7% completed secondary education, 12.5 of them finished OND/HND while 19.2% of the farmers completed first degree and above. Educational levels of the farmers influence positively on the adoption of improved technologies such as farm mechanization, fertilizer usage, agrochemicals among other that have potentials to increases farm productivity. As regards to farmers land tenure system, the majority (50%) of them inherited their land, 25% of the farmers sourced it as a gift, 12.5% of them purchased and rented the land for cassava farming. A greater proportion (29.2%) of the farmers sourced agro-input from market and 25% of them sourced inputs from fellow farmers, respectively. However, 70.8% of the sampled farmers had no access to bank credit while 66.7% of the farmers had access to extension services in the study area.

Levels of Women Participation in Cassava Production and Processing Activities

Participation of male and women farmers in cassava production and processing operation is presented below. The result in Table 2 showed that 75% of men were engaged in land preparation in relation to 29% of the women who took pair in the same activity. More so, the finding also revealed that while

Table 2: Extent of women involvement in cassava production

Activities	Frequency	Men (%)	Frequency	Women (%)
Land preparation	90	75	35	29
Ridging	85	7	38	32
Planting	45	38	95	79
Weeding	60	50	85	71
Harvesting	50	42	83	69
Women participation in foo-foo making				
Stages of production	Frequency	Men %	Frequency	Women
Peeling	65	54	76	63
Washing	69	58	85	71
Soaking for fermentation	55	46	88	73
Sieving	46	38	92	77
Cooking	53	43	87	73
Pounding	85	70	67	56
Levels of women participation in gari production				
Stages of production	Frequency	Men (%)	Frequency	Women (%)
Peeling	60	50	80	67
Washing	35	29	75	63
Grinding	85	71	15	13
Sieving	65	54	85	71
Frying	55	46	90	75
Levels of women participation in Abacha (Topola) production				
Stages of production		Men		Women
Peeling		21		60
Washing		35		75
Boiling		45		70
Slicing		15		85
Soaking for formation		37		76
Drying		51		80

Source: Field survey, 2020

71% and 38% each of the men participated in ridge making and planting of cassava, 32% and 79% of the women took part in relative to the same activity. In addition, 50% of the male cassava farmer took part in weed management and control while 71% of the female farmers were participated in the same activity, Furthermore, the results also showed that 69% of the female cassava farmers were engaged in cassava harvesting compared to 42% of the male farmers who participated in the same farming activities. From these results, it is observed that women's activities on cassava production have increased and these can be due to increased need for food and cash follow associated with this crop. In cassava production activities, it was observed from the finding that women dominated while men only made more contribution during land preparation and ridge making. This finding agrees with the finding of Mgbako and Nwamba (2013)

which said that more than 50% of cassava production activities were carried out by the women in their study. In terms of processing of cassava into Foofoo and Garri, 77%, 73%, 71%, 63%, and 53% of women were engaged in serving, cooking, fermentation, washing, peeling, and 38% of men were relatively involved in the same processing activities, respectively. More so, 75%, 7%, and 65% of women were actively involved in processing of cassava into Garri against 46%, 54%, and 50% of the male farmers who participated in the same activity. Men dominated in cassava a grinding activity, while 1.3% of women participated in the activity. The dominant roles of women in cassava production and processing activities have brought about change in their livelihood; this is because it has brought about an increase in their income and family nutrition. This has also reduced the rate at which the wives depend on their husband for upkeep.

Socio-economic Benefit Associated with Cassava Farming

From the data presented in Table 3, the positive reasons why women involved in cassava farming activities are, increases in household food security (3.37), increasing income (3.31), solving farmers felt needs (2.35), offering better clothing (2.17), and supporting educational opportunities of the farmers' children (2.04), respectively. This finding implies that the fight against hunger and starvation can be achieved by women participation in cassava production and processing, since they are responsible for meeting and solving farmers' felt needs. Increased farm income will also increase the tendency of more women to be involved in the cassava production and processing activities. This finding agrees with Onyemauwa (2012) and Mgbako and Nwamba 2013 who stated that women participated in cassava production and processing

simply because of the benefits derived from cassava farming.

Challenges Faced by Women in Cassava Production and Processing

According to finding of the study in Table 4, the challenges faced by women in terms of cassava production and processing were lack of laborers with a weighted mean (3.25), high cost of processing and storage equipment with a weighted mean (3.05), climatic factor (2.39), lack of access to credit loan (2.17), time consuming and tedious nature of the processing method with a weighted mean (2.05), and inadequate agricultural extension services with a weighted mean (2.02), respectively. This finding agreed with the finding of that of Nnyanda (2015) which saw climatic factor as one of the challenges faced by the cassava farmers in his study.

Table 3: Distribution according to socioeconomic benefit associated with cassava production

Variables	Mean
Increase household food security	3.37
Enhance educational opportunity	2.04
solving felt needs	2.35
Access to health facilities	1.23
Increase self-reliance	1.45
Offer better clothing	2.17
Increase income	3.31
Increase poverty	1.27
Increase lost	1.35
Increase farmer's dept.	1.12

Source: Field survey, 2020

Table 4: Challenges faced by women in cassava production and processing

Constraints	Mean
Lacks of access to credits	2.17
Poverty among farmer's	1.21
Time consuming and tedious nature of the processing method	2.05
High cost of inputs	1.35
Inadequate ext. Services	2.02
Limited information outlet	1.05
Processing method	
High cost of processing and storage equipment	3.05
Poor fertility of the soil	1.45
Climatic factors	2.39
Lack of laborers	3.25

Source: Field survey, 2020

CONCLUSION AND RECOMMENDATIONS

The proportion of women in agricultural production and postharvest activities is about 20–70%; their involvement is increasing in many developing countries, particularly with the development of cassava into finished product for export that included the growing demand for female labor and their male counterparts. Women play important roles in both cassava and processing activities. To feed their families, women cultivate planted cassava and process the roots into finished products and these calls for division of labor by gender in cassava production and processing activities. In view of these, findings showed that majority (71%) of the farmers were women while 23% were men. The mean age, years of farming experience, household size, and farm size of the farmers were 38 years, 8 years, 3 persons and 3 hectares, respectively. In terms of cassava production, it was observed that 79%, 71%, and 69% of the women were involved in cassava planting, weeding, and harvesting while men highly contributed to land preparation and ridge making. The processing of cassava into Akpu (Foffoo), garri, and tapioca (Abacha) was dominated by the women while men contributed significantly in grinding (71%) and pounding (70%) of cassava. Increases in household food security and income

appreciation were some of the benefits derived from cassava farming by the farmers. Despite the rapid growth in cassava production, the cassava subsector in Nigeria is still constrained by a number of factors, namely; high cost of processing and storage equipment, lack of access to bank credit, climatic factor, time consuming, and inadequate extension service. This paper recommended that women should be encouraged to form unions to enable them access loan for their needs, farmers should be encouraged to adopt agricultural mechanization through government support. Government should provide subsidies for processing and storage equipments to farmers to enable them have access to the machines. It is also recommended that the women should belong to cooperative associations, and link with agricultural extension agents in their area. Total harmonization of the both men and women in farming activities is a road map to agricultural sustainability and food security. Placing gender inequality among farmers in terms of crop production will not only create a lacuna in the field of agriculture but also will subject the people to hunger and starvation. Therefore, if women harmonize their efforts in cassava production and processing activities, this will ward off hunger in the state and also make the State a food basket of the nation. Therefore, closing the gender gaps of any form such as land allocation or crop selection in agriculture would produce significant gains for society by increasing agricultural productivity, reducing poverty and hunger, and increasing economic growth of the nation.

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