

**GENDER PARTICIPATION IN CASSAVA PROCESSING IN IMO STATE
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Uturu, Abia State, Nigeria***Corresponding Email: genevieveamadi@yahoo.com**Manuscript received: 14/02/2019**Accepted: 11/06/2019**Published: June 2019***ABSTRACT**

Gender participation in cassava processing in Imo State, Nigeria was investigated. Purposive and multi-stage random sampling techniques were used in the selection of a total of 240 farmers consisting of 120 male and 120 female cassava farmers. Instrument for data collection was a structured and pre-tested questionnaire and descriptive and inferential statistics were used to analyze the data generated. Majority of respondents (93.0% of males and 90.0% of females) were within the age range of 20 to 59; had formal education (97.0% of males and 95.5% of females); were married (74.0% males and 77.0% females); and had 4-9 persons per household. More males (27.0%) than females (6.0%) did not process their roots suggesting that they sold off their roots for cash while women processed probably to feed their family and then sell any surpluses. The mean distance from houses to processing centres of 2.0km and 1.69km respectively for male and female respondents suggest that males travel longer distances to process their cassava roots while females patronize those centres that were nearer. Female respondents have slightly more processing experience (15.0 yrs) compared to males (14.0 yrs), both groups of respondents were established and knowledgeable in cassava processing. Most of the respondents (66.63% males and 63.32% females) earned between N 10,000 – N 50,000 monthly. Only 20.0% males and 18.0% females belonged to cooperative societies. Garri, wet fufu and fufu were the most common processed product of cassava in the study area. All groups - men, women and youths generally participated in cassava processing in the study area going by the mean likert score values which were above the threshold of 3.0. Women dominated most processing activities including sieving of grated roots, toasting grated roots into garri, fermenting roots, sieving of fermented roots, cooking, pounding of cassava into fufu and drying of cassava. Youths were dominant in grating and dewatering of grated roots. The overall mean participation scores for Men, Women and Youths were 3.22, 4.16 and 4.06 respectively indicating a greater involvement of women and youths compared to men in cassava processing activities. Gaps in gender participation in cassava processing evident from the study can be addressed by policy priorities that advocate for more male involvement.

Keywords: *Men, Women, Youths, cassava processing, gender participation, socioeconomic characteristics*

INTRODUCTION

Cassava (*Manihot esculenta Crantz*) is a starchy staple consumed by millions of Nigerians. It is a major source of income for rural households (Adeniji *et al.*, 2000). With an annual production estimate of 57.1 million metric tonnes in 2016 (FAOSTAT, 2018), Nigeria is currently the largest producer of cassava in the world. Freshly harvested roots of many cassava cultivars contain high levels of toxic cyanide (Cardoso *et al.*, 2005, CIAT, 2007) and don't store beyond 3 days due to post-harvest physiological deterioration (Njoku *et al.*, 2014). Consequently they are quickly processed into more stable forms with safe levels of cyanide before consumption or storage. Nigerians consume cassava in many processed forms including garri, fufu, floor, tapioca. The uses of cassava are expanding, as further processing can produce chips, pellets, flour, alcohol and starch (Adebayo, 2009). Some inherent characteristics such as richness in carbohydrates especially starch, multiplicity of end-uses, tolerance of low soil fertility and low input, resistance to drought, pests and diseases, flexibility in planting and harvesting times, cheapness and affordability makes cassava attractive to rural people (Adeniji *et al.*, 2000, Nweke, 2004). Cassava stores its harvestable portion underground until needed; it is therefore a classical food security crop (Asogwa *et al.*, 2006).

Gender refers to socially constructed role differences between men and women for the purpose of allocating powers, duties, status, responsibilities and roles in any given social milieu or context (USAID, 2005). It determines what is expected, allowed and valued in a women or a man in a given context. In most societies there are differences and inequalities between women and men in responsibilities assigned, activities undertaken, access to and control over resources, as well as decision-making opportunities (UNWW, 2017).

Ukeje (2004) reported that the major constraint to effective recognition of women's actual roles and responsibilities in agriculture is the scarcity of gender disaggregated data for purposes of planning and policy making. This inadequate data and statistics on gender roles has given rise to stereotype assumption on the participation of men and women, and youths in cassava processing. This consequently, has negatively influenced agricultural policies and programmes geared towards increased productivity. This scarcity of empirical disaggregated data on gender necessitated this study on gender participation in cassava root processing by farmers in Imo state Nigeria.

MATERIALS AND METHODS

This study was carried out in Imo State in South Eastern Nigeria. The state lies within latitudes 4°45'N and 7°15'N of the Equator and longitudes 6°50'E and 7°25'E of the Greenish Meridian with an area of 5,100 sq km. (NPC, 2006). A purposive and multi-stage sampling technique was used in selecting two hundred and forty (240) cassava farmers consisting of 120 males and 120 females. Instrument for data collection was a structured and pre-tested questionnaire. The primary data gathered included socio-economic characteristics of respondents like age, education, marital status, household size, farm size, quantity of roots produced and processed, farming experience and membership of cooperative societies, and gender participation in specific processing activities. A 5-point Likert scale with 3 points ($\{5+4+3+2+1\}/5$) as the threshold was used to estimate level of participation. The five point Likert scoring was used as follows: (5 = Strongly Agree, 4 = Agree, 3 = Undecided, 2 = Disagree and 1 = Strongly disagree). The model was specified as follows:

Thus mean participation score = \bar{X}

$$\bar{X} = \sum fX/N$$

Mean of each value item was computed by multiplying the frequency of positive response with its appropriate Likert nominal value and the sum was added by the sum of the number of the respondent to the items. This is summarized with the equation below:

$$\bar{X} = \sum fn/N$$

\bar{X} = Mean score

\sum = Summation sign

F = Frequency or number of respondent who responded positively

n = Nominal likert score

N = number of respondents

$$\bar{X} = 1+2+3+4+5/5 = 3.00$$

Respondents with mean value of 3.00 and above indicate that they participated while values less than 3.00 indicate non participation.

RESULTS AND DISCUSSION

Socio-economic Characteristics and Social Diversity of Cassava Producers and processors in Imo State

The distribution of male and female cassava processors in Imo state Nigeria according to these socioeconomic characteristics is presented in Table

1. Majority of the males (93.0%) and of females (90.0%) were within the age range of 20 to 59 years which are arguably within the active and productive work segment of the population. Age is known to be a primary latent characteristic affecting agricultural production and processing. Being aged (>60 years) is known to reduce the ability of a farmer to bear risk, be innovative (Nwaru, 2004); and effectively withstand the rigours, strain and stress involved in agricultural production (Onyenucheya and Ukoha, 2007).

Most respondents (97.0% of males and 95.5% of females) had formal education. More female than the males were post graduates as up to 13.0% of them spent above 17 years in school as against only 3% of males educated up to that level. This is in agreement with the findings of Emerole *et al.*, (2014) that female's attained higher education than males in Udi LGA of Enugu State. According to Okoye *et al* (2004), education has the capacity to influence people to accept new technology and change their attitude to the desired technology. Higher level of education generates additional intellectual capital stock which may in turn, lead to increased potential for skills acquisition during participation (Lapar *et al.*, 2003).

Majority of the respondents (74.0% males and 77.0% females) were married. The preponderance of the married people could create potential for increased farm labour supply which would contribute positively to cassava processing. Amadi *et al.* (2016) observed that the married class does have access to extra financial, moral and physical supports from their spouses that could go a long way to improve their production activities.

4-9 persons per household was the most frequent a finding that is in agreement with the report of other authors (Udensi *et al.*, 2011; Ezeibe *et al.*, 2015). The highest proportion of labour engaged in cassava processing in our rural areas comes from the family, hence it is expected that, a household with higher household size is likely to have more helping hands. Awoniyi *et al.*, (2009) also noted that large household sizes assist in providing family labour for cassava farmers, thus leading to a more efficient use of resources and higher output.

The mean quantity of cassava roots produced weekly by males (191.0kg) was slightly higher than their female (182.0 kg) counterparts. Majority (80.0% males and 81.0% females) produced less than 500kg while only 5.0% produced more than 1000kg weekly.

Average quantities of cassava roots processed weekly by male and female respondents were 147.0kg and 183.0kg respectively. More males (27.0%) than

females (6.0%) did not process their roots suggesting that they sold off their roots for cash while women processed probably to feed their family and then sell any surpluses.

The most common distance from houses to processing centres was 1-3km for 54.0% of males and 59.0% of females respectively. The mean distance of 2.0km and 1.69km respectively for male and female respondents suggest that males travel longer distances to process their cassava roots while females patronize those centres that were nearer home in order to gain more time for other household chores. Long distance is a de-incentive to processing as it increases both the cost and drudgery of haulage of roots and processed products to and from processing centres. Nwaogu *et al.*, (2016) found that the distance farmers travelled had a negative toll on cassava productivity at 10% significance and implicated drudgery and fatigue associated with trekking long distances as being responsible.

Though female respondents have slightly more processing experience (15.0 yrs) compared to males (14.0 yrs), both groups of respondents were established and knowledgeable in cassava processing. Experience affects processing managerial know-how and decision-making process. Khanna (2001) also noted that higher farming experience attainable through increased years of farming leads to higher rates of adoption of new agricultural innovation.

Most of the respondents (66.63% males and 63.32% females) earned between N 10,000 – N 50,000 monthly. Okpara, (2015) reported that men earned more income than females from cassava processing in Enugu State. Damisa *et al.*, (2007) theorized that the higher the level of income, the greater is the level of participation of the woman in agricultural production. More income would be made to her disposal to meet her technical and logistic needs in production.

Only 20.0% males and 18.0% females belonged to cooperative societies indicating that majority of the respondents did not. In spite of the availability of cooperative societies and efforts of government and Non-Governmental Organizations (NGO's) at various levels to support these organizations, it appears that a significant proportion of rural farmers are either unaware of the existence of such co-operative societies or are lacking in the basic socioeconomic characteristics that form the prerequisite for participation in such activities (Idrisa *et al.*, 2007).

Table 1: Some Social and Economic Characteristics of Cassava Farmers in Imo State

	Male		Female	
	Freq	%	Freq	%
Age (yrs)				
<20	0	0	2	1.66
20-29	20	16.66	13	10.82
30-39	45	37.49	42	34.99
40-49	18	14.99	27	22.5
50-59	28	23.37	26	21.67
>60	9	7.49	10	8.36
Mean (years)	40.63		41.29	
Years in school				
0	4	3.35	6	5.00
1-6	40	33.33	28	23.34
7-12	43	35.83	45	37.51
13-16	29	24.17	26	21.67
≥17	4	3.32	15	12.48
Mean(years)	10.26		11.45	
Marital Status				
Single	22	18.33	12	10.00
Married	89	74.17	92	76.67
Widowed	9	7.50	15	12.50
Separated	0	0.00	1	0.83
Total	120	100.00	120	100.00
Household size				
1-3	3	2.50	6	5.00
4-6	48	40.00	42	35.00
7-9	51	42.50	50	41.67
10-12	14	11.67	18	15.00
13-15	4	3.33	4	3.33
Mean	7.19		7.23	
Quantity of Roots Processed (kg)				
0	32	26.67	7	5.83
1-500	83	69.17	105	87.5
500-1000	5	4.16	8	6.67
>1000	0	0.00	0	0.00
Mean(kg)	146.58		182.50	
Distance house to processing centre (km)				
< 1	39	32.5	36	30.0
1-3	65	54.15	71	59.17
4-6	8	6.67	10	8.34
> 6	8	6.68	3	2.49
Mean(km)	2.00		1.69	
Experience (Years)				
1-10	57	47.49	44	36.67
11-20	43	35.85	55	45.84
21-30	15	12.50	12	10.00
>30	5	4.16	9	7.49
Mean(years)	13.89		15.43	
Income from Cassava business (N)				
< 10,000	6	5.08	5	4.17

10,000 – 50,000	80	66.63	76	63.36
50,000 – 100,000	23	19.14	32	26.64
> 100,000	11	9.15	7	5.83
Mean	44,445.83		44,410.00	
Membership of Coop Societies				
Yes	24	20.00	22	18.33
No	96	80.00	98	81.67

Source: Field survey 2017

Type of Cassava Product Produced

Garri, wet fufu and fufu were the most common processed product of cassava in the study area (Table 2). Ogunleye *et al.* (2008) also found that Gari and fufu were the most common products of Cassava from their study in Ogo Oluwa Local Government Area of Oyo state. Wet fufu and fufu were mostly produced by female respondents. Cassava and cassava-based products are the most important food products for the people in South eastern Nigeria. A study on the consumption pattern of cassava in South-eastern Nigeria shows that 53.3 percent and 34 percent of people ate cassava in various forms daily or every other day respectively (Onyemauwa, 2012).

Table 2: Distribution of respondents according to the cassava processed products

Type of Product	Male		Female	
	Freq*	%	Freq*	%
Fufu	1	1.54	2	2.5
Garri	30	46.16	26	32.5
Tapioca	1	1.54	2	2.5
Wet fufu	5	7.7	9	11.25
Fufu, Tapioca, Cassava cake	0	0	3	3.04
Garri, Wet fufu, Tapioca	0	0	1	1.25
Garri, Fufu	13	20	10	12.5
Garri, Fufu, Cassava cake	0	0	1	1.54
Garri, Fufu, Tapioca	2	3.08	5	6.25
Garri, Tapioca	1	1.54	0	0
Garri, Wet fufu	4	6.16	5	6.25
Garri, Wet fufu, Fufu	1	1.54	7	8.75
Wet fufu, Fufu	0	0	5	6.25
Wet fufu, Fufu, Tapioca	1	1.54	0	0
Wet fufu, Tapioca	1	1.54	1	1.54

Source: Field survey 2017, 1= Wet fufu is the wet mash produced by sieving and dewatering soaked fermented root, *Multiple responses

Gender participation in cassava processing

The participation of men, women and youths in cassava processing are presented in Table 3. All groups - men,

women and youths generally participated in cassava processing in the study area going by the mean likert score values which were above the threshold of 3.0. This is in agreement with the report by Fapojuwo, (2007). Women dominated most processing activities including sieving of grated roots, toasting grated roots into garri, fermenting roots, sieving of fermented roots, cooking, pounding of cassava into fufu and drying of cassava. Youths were dominant in grating and dewatering of grated roots. The overall mean participation scores for Men, Women and Youths were 3.22, 4.16 and 4.06 respectively indicating a greater involvement of women and youths compared to men in cassava processing activities. This finding is in agreement with the report of other authors (Ogunleye *et al.*, 2008; Lagat and Maina, 2017; Nze *et al.*, 2017). Men avoided certain roles like washing peeled cassava roots, cooking and wrapping of cooked cassava as indicated by their mean score values of (2.65), (2.84) and (2.97) respectively which were less than the threshold of 3.0. Other roles avoided by men include fermenting/soaking of roots, and sieving fermented cassava roots (Mean 2.93) (Table 4.21). Moma, *et al.* (2014) reported that women process cassava for both household consumption and market sale and that processing begins with peeling the root, which is laborious and time consuming. The report by Onyemauwa (2012) that women do not participate in grating of peeled roots and in dewatering of grated roots is inconsistent with the findings of this study which showed that women grate and dewater grated cassava roots as indicated by mean participation scores of 3.63 and 3.18 respectively though to a lesser extent compared to men and youth.

Table 4.21: Likert mean scores for gender participation in cassava processing

Roles	Male			Female		
	Adult men	Adult women	Youths	Adult men	Adult women	Youths
Peel roots	3.33	4.30	4.38	3.30	4.42	4.36
Wash peeled roots	2.85	4.37	4.44	2.36	4.45	4.44
Grate peeled roots	4.03	3.64	4.45	3.93	3.62	4.16
Press grated roots	4.33	4.33	4.33	3.88	3.15	3.98
Sieve pressed roots	3.16	4.38	4.20	3.03	4.24	4.11
fry garri	3.63	4.51	4.33	3.35	4.51	4.26
ferment/ Soak roots	2.77	4.43	3.71	2.88	4.17	3.87
sieve ferment roots	2.87	4.42	3.78	2.93	4.27	3.88
cook cassava	2.81	4.42	3.89	2.87	4.32	3.83
pound cassava	3.18	4.37	3.88	3.26	4.34	4.11
wrap cassava	2.98	4.33	3.88	2.96	4.26	3.75
dry cassava	3.63	4.23	4.03	3.48	4.21	4.22
Mean Score	3.34	4.31	4.11	3.20	4.16	4.08

Source: Field Survey, 2017; Cut-off score = 3.0, > 3.0 = Yes; < 3.0 = No.; likert scale value Strongly agree 5, Agree 4, Undecided 3, Disagree 2, Strongly disagree 1.

CONCLUSIONS

This study showed that men, women and youths generally participated in most operations in cassava processing. Gender gaps in cassava processing evident from this study can be addressed by allowing unrestricted access to productive resources as a way of exploiting the potentials of different gender groups in cassava processing. Policy options should be directed at encouraging more male involvement in cassava processing. Farmers in the area should be supported to form and participate in cooperative societies. This is likely to bring the cassava farmers together and collectively they can bargain for better incentives.

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