



## Baseline Study of Cassava Seed Business Among Youths in Anambra State, Nigeria: A Gender Situation Analysis

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### Abstract

The study assessed baseline study of cassava seed business among youths in Anambra State, Nigeria: a gender situation analysis. The specific objectives were to; identify the level of participation in cassava seed business among male and female youths, estimate the level of market orientation among male and female youths in cassava seed business, ascertain the significant differences in total area of the farm, area of cassava farm planted and bundles harvested among male and female youth farmers, identify the determinants of participation in cassava seed business among male and female youths and estimate the factors constraining youths' participation in cassava seed business. Primary data were collected randomly from 60 male and 60 female cassava farmers using a structured questionnaire and Focus Group Discussion (FGD). Data were analyzed using statistical tools such as, descriptive statistics, Z-test and regression analysis. From the findings, the average mean age of both female and male farmers was 30 and 18 years. Results also shown that the majorities (71%) of the female youths participated in weeding of cassava farm while 78% of the male youths engaged in pest and disease management. However, 65% of the male youths planted 1.3ha of cassava stems, 81% of the female youths planted 2.2ha of cassava stems, male youth farmers in the study sold 62% of the average 340 bundles of cassava quantity produced within a year while 75% of the average quantity of 520 bundles of cassava produced within a year was sold by the female youth farmers. The finding also shown that there is a significant difference in total area of the farm, area of cassava farm planted and bundles harvested among male and female youths in the study area. As regards to the determinants of the level of participation in cassava seed business, only five variables were found to be statistically related to the factors influencing the level of participation in cassava seed business among male and female youths. Those variables were educational level, access to credit, family size, farm size and income. The major constraints to cassava seed business were flooding, disease and pest attack, fire outbreak, drought problems, high cost of labour, high cost of inputs, poor road network, high cost of cassava seeds, Too much attention on other crops, dryness and perishability of the seeds respectively. Both genders faced different constraints with two similar constraints such as flooding and pest and diseases. Therefore, there is a need to employ various strategies for improving participation in cassava seed enterprises. The study concluded that both males and females participated actively in cassava production while a greater percentage of females took part mostly in planting and weeding. It is recommended that research and extension should target both male and female cassava farmers with appropriate technologies that will improve their participation in cassava value chain development to enhance their income, standard of living and provide employment. There is also need to work on the important constraints militating against cassava seed production for increased participation and production of cassava seed thereafter.

**Keywords:** Gender, male and female Youths, Cassava production, and Socioeconomic characteristics.

## INTRODUCTION

Cassava (*Manihot esculenta* Crantz) is the most important tropical root crops that provide food and income for over 30 million people (Apata, 2019). Nigeria is the largest producer of cassava in the world with an annual output of about 63 million metric tons (FAO, 2020). Cassava is grown in all the ecological zones in Nigeria. It is cultivated in almost all the States in Nigeria. However, the production is very much dominated by small scale farmers who use old and local varieties and traditional production technologies which largely accounts for low yield. Oyebanji et al. (2003) in Madu, Okoye, Ewuziem and Onyeka, (2022), noted that these small-holders account for over 80% of cassava production in Nigeria. Therefore, over 90% of cassava produced in the country is consumed locally with less than 10% utilized for industrial purpose.

However, the proportion of income obtained from cassava farming in Nigeria is higher than that obtained from another major staple (Henri-Ukoha and Ikpe,2018).

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 context (Amadi and Eze,2019). It determines what is expected, allowed and valued in a woman or a man in a given context. In the most societies, there are differences and inequalities between women and men in the responsibilities assigned, activities undertaken, access to and control over resources, as well as decision-making opportunities (United Nations Women Watch (UNWW), 2017).

Gender analysis will help for a better understanding of the needs and priorities of different people, both men and women, by clarifying how gender intersects with class, age, religion, ethnicity and other social factors. Gender situation can help predict which producers are likely to benefit from the introduction of a new project, especially when market demand increases that is likely to lead to large-scale, more intensive production systems. Such an analysis can identify interventions to ensure that women, who are likely to be disadvantaged by socioeconomic and cultural factors, are not marginalized or displaced by increased commercialized of cassava seed system (Madu, Okoye, Ewuziem and Onyeka, 2022).

The role of seed systems cannot be underestimated, since seed is essential to food security and also the first link in the food value chain (Madu, Okoye, Ewuziem and Onyeka, 2022). Hence, good quality cassava seed is essential for high quality cassava products. Despite the contributions of youths to household agriculture, there is a little empirical data to back up cassava seed business. Based on this, an assessment on the level of youth's participation in cassava seed business becomes relevant and this remains necessary in order to design appropriate intervention policies and strategies to move the country forward (Jirgi, Adebayo, Abdullahi, Ibrahim, Coker,2019). In view of this, the study assessed the baseline study of cassava seed business among male and female youths in Anambra State, Nigeria: a gender situation Analysis. The specific objectives were to:, identify the level of participation in cassava seed business among male and female, estimate the level of market orientation among male and female youth in cassava seed business, determine the significant differences in area of cassava planted, bundles harvested ,bundles sold and market orientation between male and female, identify the determinants of participation in cassava seed business among male and female youths and ascertain the factors constraining male and female youths participation in cassava seed business.

## Materials and methods

The study area for this research is Anambra State. The State is located in the South East of Nigeria. It is bounded by Delta State to the West, Imo State to the South, Enugu State to the East and Kogi State to the North. The State lies on the longitude  $6^{\circ} 35^E$  and  $7^E$  and latitude of  $5^{\circ} 38N$  and  $6^{\circ} 47^E$ . The target population for this study was cassava seed farmers in the State. Multistage sampling techniques were used for this study. Four local governments out of 21 local governments in Anambra State were selected due to their popularity in cassava production and seed marketing. Ayamelum, Anambra East, Anambra west and Ogbaru local government were selected. In the second stage, two communities each from a local government were selected. Here Omor and Umumbo in Ayamelum Local Government, Igbariam and Umuoba Anam in Anambra East, Nzam and Iyi Ora Anam in Anambra west , Atani and Osamala in Ogbaru Local Government were purposely selected. These gave a total of eight (8) communities. Third stage, 15 farmers were selected from each community using simple random techniques and this gave a total sample size of 120 respondents. Data were collected through a structured questionnaires and Focus Group Discussion (FGA). Data collected for the research were analyzed using statistical tools such as, descriptive statistics, Z-test and regression analysis.

## Model specification:

The model for the factors influencing participation of male and female youths in cassava seed business is expressed as follows:

$$Y=(X_1, X_2, X_3, X_4, X_5, X_6, X_7, \dots, X_{10})+e$$

Where

Y=quantity of seed produced  
 X1 = age in years.  
 X2 = purchase price (N)  
 X3 = education level  
 X4 = marital status, (single = 0,  
 Married=1and widow/divorce)  
 X5 = family size (measured by the  
 Number of people living under one roof)  
 X6 = farming experience (years)  
 X7 = access to credit  
 X8 = farm size  
 X9 = transportation cost (N)  
 X10 = income (N)

## Results and Discussion

### Socio-economic characteristics of farmers

Findings of the study indicated that majorities (51.2% and 46.7%) of the farmers (male and female youths) were within the age range of 18-25 years. The average mean age of both female and male farmers was 30 and 18 years. This implies that majority of the farmers were still in their productive years, although the females (30yrs) were older than their male (18yrs) counterparts. The implication is that these younger farmers are likely to adopt new innovation faster than the older ones in cassava production. This finding agrees with those of Madu *et al* (2022) which said that younger people are more technically efficient, effective and could with stand the stress and strain involved in cassava production. However, 51.7% and 41.7% of male and female cassava seed farmers were married. This shows that cassava production in the area is a business of married individuals, who are seen to be responsible according to societal standards (Ohen *et al.*, 2014; Onumadu *et al.*, 2014 and Madu *et al*, 2022). This finding is in line with Madu *et al* (2022) that married farmers tend to have access to production variables such as land and large family size which are traditionally owned and provided by household heads to compliment family labour. These enhance production; reduce the cost of hired labour and resource use efficiency of the farmers.

Moreover, the majority (41.7% and 48.3%) of the farmers (male and female youths) acquired primary education while 16.7% and 15.0 of the farmers (male and female youths) had no formal education. According to Okoye *et al* (2004), cited by Amadi and Eze (2019), education has the capacity to influence people to accept new technology and change their attitude to the desired technology. Therefore, higher level of education generates additional intellectual capital stock which may in turn, lead to increased potential for skills acquisition during participation (Amadi and Eze, 2019). This finding is in agreement with the findings of Emerole *et al.*, (2014) that female farmers attained higher education than males in Udi LGA of Enugu State. The average mean household sizes for males and females farmers were 5persons. This implies that both male and female farmers have a high family size that can give a helping hand in cassava seed business in the study area. The highest proportion of labour engaged in cassava production and 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 (Amadi and Eze, 2019). Therefore, it is important to note that large household sizes assist in providing family labour for cassava farmers, thus leading to a more efficient use of resources and higher output. On the other hand, the average farm size for male and female cassava farmers was 2.2ha and 2ha with an average farming experience of 5.9 years and 5.7years respectively. This implies that farmers in the study area are still small scale farmers. In terms of experience, majority of the farmers had long years of farming experience that can facilitate cassava seed business. This indicates that experience in agribusiness enhances output performance. This finding agrees with Madu *et al*, (2022) who reported that farmers' with more experience would be more efficient, have better knowledge of climatic conditions, better knowledge of efficient allocation of resources and market situation and are thus, expected to run a more efficient and profitable enterprise. It also supports the findings of Esiobu *et al.* (2014) who noted that previous experience in agribusiness management enables farmers to set realistic time and cost targets, allocate, combine and utilize resources efficiently and identify production constraints.

**Table 1: socio-economic characteristics of cassava seed business farmers**

Variables	Male(n=60)			Female(n=60)		
	Frequency	Percentage	Mean	Frequency	Percentage	Mean
<b>Age</b>						
18-25	29	48.3		25	41.7	
26-35	15	25.0	18 years	16	26.7	30 years

36-45	16	26.7		19	31.7	
<b>Marital status</b>						
Married	31	51.7		28	46.7	
Single	15	25.0		17	28.3	
Widow	10	16.7		10	16.7	
Separated	4	6.7		5	8.3	
<b>Farm size</b>						
0.5-1ha	30	50		35	58.3	
2-3ha	15	25.0	2.2ha	12	20	2ha
4-5ha	12	20.0		9	15.0	
6-7ha	3	5.0		4	6.7	
<b>Farming experience</b>						
1-5 years	27	45.0		31	51.7	
6-7 years	18	30.0		13	21.7	
8-9 years	5	8.3		8	13.3	
10-11years	7	11.7	5.9 years	3	5.0	5.7 years
12-13 years	3	5.0		5	8.3	
<b>Educational level</b>						
Non formal education	10	16.7		9	15	
Primary school	25	41.7		29	48.3	
Secondary school	15	25.0		17	28.3	
OND/NCE	3	5.0		2	3.3	
First degree/HND	4	6.7		2	3.3	
M.Sc/Ph.D	3	5.0		2	3.3	
<b>Household size</b>						
1-5	29	48.0		35	58.3	
6-7	11	18.3		9	15.0	
8-9	13	21.7	4.8 persons	10	16.7	5.3 persons
10-11	5	8.3		3	5.0	
12-13	2	3.3		3	5.0	
<b>Extension visits</b>						
Yes	40	66.7		35	58.3	
No	20	33.3		25	41.7	
<b>Membership of organization</b>						
Yes	50	83.3		45	75.0	
No	10	16.7		15	25.0	

Source: Field work, 2023.

### Level of participation in cassava seed business

In terms of level of participation in cassava seed business, a greater proportion (68%) of male farmers participated in land clearing while 40% of their female counterpart participated in land clearing. This implies that male dominated the activities of land clearing in cassava seed business. According to Madu *et al* (2022), Land clearing requires strength, so

women are not all that energetic to perform such duties and because of it, they rely on male youth and hire labour to carry out such jobs. Women can only clear farm lands if they could not find a man or male youth to do the work. In terms of planting, 71% of the female farmers dominated the activities while 38% of the male farmers involved in the activities. Results show that all the gender groups are involved in planting cassava but women play a dominant role. This finding is in consonance with Madu *et al* (2022), who said that female farmers dominated the activities of cassava plating in their study. However, the majority (62%) of the female youths participated in weeding of cassava farm while 48% of male farmers engaged in weeding activities. According to Madu, *et al* (2022) Women's involvement in planting are highly pronounced when the traditional methods of planting (planting on flat) cassava is practicing. In terms of mechanical method of cassava farming, planting on ridges is likely involved; therefore, men will likely be involved in planting. Majority (62%) of the female farmers dominated the weeding activities while male contributed little compared to their female counterpart in the study area. Manual weeding is another activity that is mostly performed by women. This activity is a major constraint to women participation in farming generally when it comes to large scale cassava farm owners. Weeding is however, complimented with herbicide application which is usually done by male youths. Therefore, over 83% of this activity is performed by men, but women fetch water that is used in the operation. This activity requires some level of physical ability to perform because the knapsack tank has to be carried at the back of the operator. Women may not find this activity an easy task to perform; they therefore rely on the men and male youths to discharge the duty. More so, 78% of the male youths engaged in pest and disease management while the majority (58%) of the female counterpart involved in selling of the stems. As regards to stem harvest, 60% of the male farmers participated in stem harvesting while 45% of their female involved in the same activities.

**Table\_2: Rate of participation in cassava seed business among male and female youths**

	Male	Female
Activities	Percentage	Percentage
Land preparation	68	40
Planting of cassava seed	38	71
Weeding	48	62
Pest and disease management	78	35
Harvesting of stems	60	45
Transporting of the stems to market	50	29
Selling of the stems in the market	48	58

Source: Field work, 2023.

### Level of market orientation in cassava seed business among male and female youths

In explaining the level of market orientation among cassava seed farmers in the study area, we employed household market orientation index. In this case, we distinguished between households that produce cassava stems for market from those made for replanting. The findings of market orientation index reflect that land allocation for cassava seed was designed for profit maximization. Specifically, on average, 65% of the male youths planted 1.3ha of cassava stems, while 81% of the female youths planted 2.2ha of cassava stems. As the average market orientation index for male and female youths for cassava seed production is 0.65 and 0.81 respectively. This implies that male and female youth farmers in the study have a real market orientation that can help them speed up their cassava seed business.

Analysis from table3 below also shows that 55% of the male youths harvested an average yield of 405 bundles of cassava in a year while 65% of the female youths harvested an average yield of 610 bundles of cassava seed in a year. The implications may be female youth farmers have more market orientation than their male counterpart and that could be the reasons they harvested more cassava stems than males. Results from computed cassava seed marketability index indicate that male youth farmers in the study sold 62% of the average 340 bundles of cassava quantity produced within a year while 75% of the average quantity of 520 bundles of cassava produced within a year was sold by the female youth farmers to commercialize their business as well. The implication of this is that, the male cassava seed farmers are considered moderately commercialized as their sales' percentage is above the midpoint but less than the threshold level of 75%. According to Goletti (2005) and Ohen *et al.* (2013) in Osmani and Hossain (2016), farmers (small or large) are said to be commercial if they sell more than 75% of their total production.

**Table\_3: level of market orientation in cassava seed business among male and female youths**

	Male		Female	
Variables		%		%
Average area of land planted with cassava seeds	1.3ha	65	2.2ha	72
Average area of land planted with	0.6ha	40	0.9ha	52

other crops				
Average quantity of cassava bundles harvested in a year	405bundles	55	610bundles	65
Average quantity of cassava bundles sold in a year	340bundles	62	520 bundles	75

Source: field work, 2023.

### Estimation of the significant differences in total farm size, areas of cassava planted and bundles produced between male and female youths.

The finding of the study also shown that there is a great significant difference in total farm size, area of cassava planted and bundles of cassava produced between male and female youths in the study area.

**Table\_4: Estimation of the significant differences in total farm size, areas of cassava planted and bundles produced between male and female youths.**

Items	Mean	Std.dev.	Z-Test
Total farm size			
Male	2.7966	0.7607	5.6120*
Female	2.2034	0.4059	
Cassava farm size			
Male	2.2054	0.4098	15.2370*
Female	0.5932	0.4955	
Number of cassava bundles produced			
Male	452.5424	97.12404	0.180*
Female	449.1525	98.91285	

Source: field work, 2023.

### Determinants of level of participation in cassava seed business among male and female youths

Table 5 and 6 indicated that out of the various variables investigated as regards to the determinants of the level of participation in cassava seed business among male and female youths in the study area, only five variables were found to be statistically related to the factors influencing the level of participation in cassava seed business Those variables were educational level, access to credit, family size, farm size and income.

#### Educational level

The coefficient for the educational level was negative and this implies that individuals with higher educational attainment are usually participated heavily in cassava seed business while those with lower education tend to participate lower in the same business. The findings signified that the farmers have minimal educational background that is relevant for being market oriented. It is expected that educational attainment will contribute significantly to decision making of a farmer for being market oriented and participated well in cassava seed business. This finding is line with Chukwu (2015) and Esiobu and Onubuogu (2014), who said that education is one of the factors that influences the participation in market orientation and cassava seed business.

However, an increase in the level of education of the farmers can result in an increased level of commercialization of the farm enterprise. This is in line with *a priori* expectation as educated farmers are flexible and can adopt good changes and new improved technologies that can enhance their level of commercialization. Therefore, level of education of a farmer does not only increase his productivity, but also enhance his ability to understand, evaluate and adopt new production techniques (Iheke, Onu and Egem,2021).

#### Access to credit

The coefficient for credit availability was negative and significant. This implies that farmers participate heavily once they have access to obtain loan but may reduce their rate of participation when the opposite becomes the case. Credit could be used to purchase inputs (planting material, fertilizer and seeds), pay wages and invest in machinery, among others. The availability of credit is expected to lead to increased agricultural productivity and greater participation in cassava seed business.

#### Income

The coefficient of income is positively significant and indicates that increase in income will lead to an increase of being market oriented and participation on cassava seed business among youth farmers. The income received associated with the procurement of inputs and farmers' well-being is expected to encourage market orientation and participation in

cassava seed business. Income is positively related to probability of adoption and participation in cassava seed business. This finding agrees with Iheke, Onu and Egem (2021) who said that income is positively related to participation in market orientation and cassava seed enterprise.

#### Farm size

Farm size is one of the determinants of participation among youth farmer in cassava seed business. The farmers with large farm size are more capable to adopt and participate more in cassava seed business than those who have little access to farm. Therefore, the positive influence of farm size on the determinants implies that the larger the farm size, the more utilization and participation in cassava seed enterprise among youth farmers. This finding is in line with Udemezue, Nwalieji and Nenna (2017) who saw large farm size as one of the determinants of participation in rice farming in Anambra State.

#### Family size

Family size is another variable that determines the participation in cassava seed business among male and female youths in the study area. The coefficient of family size in this regard is positive for male youth farmers and this implies as the number of family size increases, the participation of labour force in cassava seed business also increases provided that all things being equal. For female youth farmers the coefficient of family size is negative and this indicates that the number of labour force that will participate in cassava seed business will as well decrease all things being equal. This also implies that the contribution of explanatory variables is inversely proportional to dependent variable. Therefore, family size could be positively or negatively related to participation in cassava seed business.

**Table\_5: Determinants of the level of participation in cassava seed business among male youths.**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1378.467	24.135		57.114	.000
Educational level	-.291.988	15.891	-.3.276	-18.374	.000
Access to credit	-.565.321	49.843	-.2.673	-11.342	.000
Family size	120.666	3.885	2.294	31.063	.000
Income	236.242	17.893	.423	6.840	.000
Farm size	494.709	38.081	3.592	12.991	.000

Source, Field work, 2023.  $R^2=0.983$ , Adjusted  $R^2=0.980$

**Table\_6: Determinants of the level of participation in cassava seed business among female youths**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	331.739	92.128		3.601	.001
Access to credit	-145.849	24.287	-.731	-6.005	.000
Family size	-51.252	7.397	-1.032	-6.929	.000
Income	53.883	30.243	.739	5.880	.000

Source: Field work, 2023.  $R^2=0.913$ , Adjusted  $R^2=0.901$

#### Constraints to effective participation in cassava seed business among male and female youths

Findings of the study identified the constraints to cassava seed business as follows: Flooding, disease and pest attack, fire outbreak, draught problems, high cost of labour, high cost of inputs, poor road network, high cost of cassava seeds, too much attention on other crops, dryness and perishability of the seeds. In terms of ranking as regard to the constraints to male and female cassava seed business, flooding and disease/pest attack were ranked first and second as the common constraints that affect cassava seed production in the study area. Other constraints were identified and ranked differently based on the perception and prevailing factors between male and female youth farmers in the study area. This finding is in line with Ukeje *et al* (2020) who identified pests and diseases, high production cost and poor road network as the constraints working against cassava production business in South East, Nigeria.

**Table\_7: Constraints to effective participation in cassava seed business among male youths**

Variables	Male Mean	Ranking	Variable	Female Mean	Ranking
Flooding	3.90	1 <sup>st</sup>	Flooding	3.23	1 <sup>st</sup>
Disease/pest infestation	3.72	2 <sup>nd</sup>	Disease/pest attack	2.79	2 <sup>nd</sup>
High cost of inputs	2.90	3 <sup>rd</sup>	Fire outbreak	2.67	3 <sup>rd</sup>
Inadequate buyer	2.42	4 <sup>th</sup>	Drought problems	2.40	4 <sup>th</sup>
lack of access to credit	2.40	5 <sup>th</sup>	High cost of labour	2.39	5 <sup>th</sup>
Too much attention on other crops.	2.39	6 <sup>th</sup>	High cost of inputs	2.35	6 <sup>th</sup>
Transportation cost.	2.22	7 <sup>th</sup>	Poor road network	2.20	7 <sup>th</sup>
Poor road network	2.20	8 <sup>th</sup>	High cost of cassava seeds	2.18	8 <sup>th</sup>

Source: Field work, 2023.

## CONCLUSION

The baseline study of cassava seed business among youth farmers in Anambra State shown that the average mean age of both female and male farmers was 30 and 18 years. However, the majorities (71%) of the female youths participated in weeding of cassava farm while 78% of the male youths engaged in pest and disease management. However, 65% of the male youths planted 1.3ha of cassava stems while 81% of the female youths planted 2.2ha of cassava stems. Results from computed cassava seed marketability index indicate that male youth farmers in the study sold 62% of the average 340 bundles of cassava quantity produced within a year while 75% of the average quantity of 520 bundles of cassava produced within a year was sold by the female youth farmers to commercialize their business as well. The finding also shown that there is a significant difference in total area, area of cassava farm planted and bundles harvested among male and female youths in the study area. As regards to the determinants of the level of participation in cassava seed business, only five variables were found to be statistically related to the factors influencing the level of participation in cassava seed business among male and female youths. Those variables were educational level, access to credit, family size, farm size and income. The major constraints to cassava seed business were flooding, disease and pest attack, fire outbreak, drought problems, high cost of labour, high cost of inputs, poor road network, high cost of cassava seeds, Too much attention on other crops, dryness and perishability of the seeds respectively. The findings call for policy interventions aimed at increasing cassava production by supporting for more involvement of the male and female youths in cassava seed production. There is also need to work on the important constraints militating against cassava seed production for increased participation and production of cassava seed. Gaps in gender participation in cassava seed production according to the study can be addressed by policy measures that advocate for more equal involvement in cassava seed business. In order to address these gaps, male and female cassava farmers in the area should be given unrestricted access to productive resources as a way of exploiting their potentials in cassava production through the establishment of gender-based cassava development programs as to address the disparities in cassava seed business. It is also recommended that research and extension should target both male and female cassava farmers with appropriate technologies that will improve their participation in cassava value chain development to enhance their income, standard of living and provide employment.

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