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GENDER ROLES IN CASSAVA PRODUCTION IN BENUE STATE, NIGERIA

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Abstract: *The study focused on gender roles in cassava production in Benue State Nigeria. A multistage sampling procedure was used to draw sample of 200 male and female cassava farmers. Data collection was with the aid of a structured questionnaire. Descriptive and inferential statistics were used to analyse the data. Results on socio economic characteristics showed that majority of the respondents were aged 29-38 years, 36.5% were between the age range of 39-48 year. The married constituted the majority (86.0%) of the respondents, the mean household size of respondents was 9 persons, 42.0% of the respondents had primary education, 31.5% had tertiary education and 26.5% had secondary education. The study revealed that the main occupation of the respondents was farming (80%), it also revealed that majority (72.5%) of respondents had no access to credit. The study revealed the roles mostly performed by men include land preparation (□ = 2.81), herbicides application (□ = 2.78) and harvesting (2.47). On the contrast women mostly involved in weeding □=2.76 and planting □=2.67. The study revealed that male respondents had high level of involvement in herbicide application (□ = 2.87. female had □ =1.21) while the female respondents had high level of involvement in weeding (□ = 2.78). The results on constraints* ***to*** *effective cassava production by male and female in the study area revealed that male respondents had severe constraints such as lack of mechanization and modern farming techniques (□ = 2.48) while the female respondents on the other hand, had severe constraints in pest and disease problem (□ = 2.93)/. It was concluded that gender roles in cassava production involved male respondents dominating their female counterparts in cassava production activities that involved more physically demanding tasks such as land preparation, land tilling, harvesting and application of herbicide while women engaged in tasks traditionally deemed suitable for their gender such as planting, weeding and pest and disease control. It was recommended that there is need to promote safe agricultural practices by government such as sustainable land management by farmers and extension, pesticide and fertilizer by farmers, use climate-smart agriculture by farmers and researchers.*

Key words: *Gender, gender roles, production, process, cassava.*

Introduction

The Nigerian agricultural sector besides, providing food for the entire nation, has been identified as the largest employer of labour with 70 percent of the nation's population involved in Agricultural and agro-based activities (National Bureau of Statistics (NBS), 2019). According to Angbaand (2020), agriculture employs about two-third of Nigeria's total labour force, contributed 42.2% of Gross Domestic Products (GDP) and provides 88% of non-oil earnings. Among the crops that contribute to 85 per cent of Nigeria's GDP, cassava (*Manihotspp.*) is recognized together with yams, rice, maize, sorghum, and millet as the main staple food crops in Nigeria (Angbaand, 2020). Cassava has a high poverty-reduction potential for Nigeria due to its low production cost (Angbaand, 2020).

Cassava (*Manihotesculenta*Crantz) production and consumption have shown a positive trend globally, with Africa leading in production and Asia dominating in trade and processing. Africa produces over 54% of the world's cassava, with Nigeria taking the global lead, accounting for approximately 20% of global production (World Bank, 2022). Despite the fact that cassava is by far the most important crop in Africa by both production weight and value, it provides a similar source of calories as rice.

Cassava is an essential staple crop in Nigeria and Africa at large, as it plays an important role in meal safety and income generation for thousands of human beings in Nigeria. It is well tailored to various agro-ecological zones and may be grown in marginal environments. It has drought tolerance resistance on marginal agricultural land andthe capability to stay underground for up to a few years (International Food Research Institute (IFPRI), 2020).

Gender is a term often associated with roles and responsibility of males and females in the society as a social classification of sex. It is the socio-cultural differences between males and females as against the biological differences (Agada*et al.*2018). It is also described as a concept used in social science analysis to look at roles and activities of men and women. Thus, the focus of gender analysis is not biological differences between men and women but rather on their experiences as members of society. Gender participation give insight into issues affecting women and it is focused mainly on the relationship of both men and women to the social and economic structure of a society According to Agada *et al.* (2018), in most parts of rural Nigeria, division of labour within the households is gender specific and according to age.

Men and women perform different roles, have unequal decision-making power as well as differences in access to and control over agricultural productive resources. As a result of these differences, their views, needs, priorities and constraints to improving their productive potentials differ. This could affect their various outputs even in cassava enterprise development. Hence, the understanding of gender participation and constraints in cassava production and processing among rural farmers in Benue State, Nigeria is important in view of the current threat to food security as a result of the economic recession facing the country and the need to increase and sustain the enterprise among farmers. This will ensure effective allocation of resources for increased and sustainable cassava development activities, thereby increasing cassava outputs for improved livelihoods for the people. According to Geneva International Centre for Humanitarian Demining (GICHD) (2014), in rural Nigeria, household responsibilities are typically divided based on gender and age. The term "gender" encompasses socially constructed roles, opportunities, and values assigned to women, girls, boys, and men. Gender is a learned and evolving identity that varies across cultures (Geneva International Centre for Humanitarian Demining (GICHD), 2014). The assigned roles for men

and women in society aim to distribute powers, duties, status, responsibilities, and roles within a particular social context (United States Agency for International Development (USAID), 2017).

Problem statement

In spite of the leading position of Nigeria in the production of cassava in the globe, the country still imports significant quantities of cassava products such as starch, flour, sweeteners that can be obtained locally from cassava. Industrial users of cassava products in the country consist mainly of bakeries, flour mills, livestock, and pharmaceutical firms (Olajide *et al*., 2021). The inability to meet local demand can be attributed to significant increase in inadequate infrastructural facilities such as poor storage facilities, bad roads, pest and diseases and bulkiness of the products. These factors could be some of the risk factors imposing a great threat to food security in the country. Also, it has been proven that the recent supply fall of cassava products is due to tediousness and drudgery associated with the manual methods of processing the roots tuber – as most of the operations in production of *garri* are manually executed (Ozigbo *et al.,* 2020).

In Benue State, Nigeria, cassava production are critical economic activities contributing significantly to food security, income generation, and rural livelihoods. Despite its importance, the sector is characterized by deeply entrenched gender roles that dictate the division of labor, access to resources, and decision-making power among men and women. In many communities, traditional cultural norms allocate cassava production predominantly to men, while women are largely confined to processing and related activities.

Existing literature on agricultural gender dynamics has predominantly focused on broader crop production systems or other regions, often neglecting the nuanced realities of cassava production in Benue State. Although some studies have acknowledged the role of gender in agricultural activities, there remains a significant research gap in understanding how these gender roles specifically affect the cassava production in this region. Key issues such as disparities in access to technology, training, credit facilities, and market opportunities between men and women are underexplored. Moreover, the impact of these gender-specific constraints on overall productivity, income distribution, and community development has not been adequately investigated. It is against the above backdrops that this study intends to address these gaps by conducting a comprehensive examination of gender roles within the cassava production sector in Benue State.

Objective.

The broad objective of the study was to analyse gender roles in cassava production in Benue state. The specific objectives of the study were to:

v. describe the socio-economic characteristics of cassava farmers in study area;
vi. identify the gender roles in cassava production in the study area
vii. determine the selected socio-economic factors influencing male and female participation in cassava production
viii. identify the constraints to effective cassava production by male and female respondents in the study area.

Research question

i. What are the socio-economic characteristics of cassava farmers and processors in the study area?

ii. What are the gender roles of male and female in cassava production in the study area?
iii. What are the socio-economic factors influencing male participation in cassava production?
iv. What are the constraints to effective cassava production by male and female respondents in the study area?

Research Hypothesis

The null hypothesis was formulated and tested in this study at 0.05 level of significance

H_0^1: There is no significant difference between male and female roles in cassava production in Benue State

Significance of the Study

The study on gender roles in cassava production is crucial due to its implications for agricultural productivity, rural development, and gender equality. Below are the detailed significance points:

It will lead to improved agricultural productivity The study will help policymakers and development agencies to design gender-sensitive programmes that allocate resources effectively, ensuring both men and women can optimize their contributions to cassava production. By addressing gender-based barriers, the study fosters sustainable agricultural practices and higher yields.

METHODOLOGY

Study Area

This study was conducted in Benue State. The state was carved out of the former Benue-Plateau State and part of the present Kwara State. It derived its name from the Benue River. It is located in the north central geo-political zone of Nigeria with 23 Local Government Areas and Makurdi as its capital.

Sampling Techniques and Sample Size

The target population for this study consists of all cassava farmers in Benue **State** . A multi-stage sampling technique was used to select respondents for this study.

Stage 1 Involved the purposive selection of three (3) Local Government Areas (LGAs) in Benue State. These included Gwer East, Logo and Okpokwu LGAs. These Local Government Areas were selected due to high cassava production and processing.

Stage 2 This stage involved the purposive selection of three (3) communities from each of the selected LGAs in Benue State. The selected communities are known for high cassava production and processing activities. In Gwer east (Ikpayongo, Aliade and Taraku), in Logo (Ugba, Anyiin and Abede), and in Okpokwu (Aidogodo, Agene and Amuju) communities were used for the study. These made upthe nine (9) communities that were used for the study.

Stage 3 This stage involved the random (balloting) selection of 60% of cassava producers who are also involved in processing from list of 334. These comprised 110 males and 90 female's cassava producers and processors. This was obtained from the office of Value Chain Development Programme (VCDP) in Benue State.

Table 1. Distribution of sample size

LGA	Selected communities	registered cassava producers		60% randomly selected cassava producers	
		Men	**Women**	**Men**	**Women**
Gwer East	Ikpayongo	21	18	13	11
	Aliade	17	15	10	9
	Taraku	22	16	13	10
Logo	Ugba	20	14	12	8
	Anyiin	21	20	13	12
	Abede	19	14	11	8
Okpokwu	Aidogodo	25	19	15	11
	Agene	19	15	11	9
	Amuju	20	20	12	12
Sub-total		**184**	**151**	**110**	**90**
Total = 3	**9**	**334**		**200**	

Source: Value Chain Development Programme Office, Benue state, 2024

Method of Data Collection

This study used primary data. A structured questionnaire was used to collect data from respondents in the study area.

Method of Data Analysis

The data collected for the study were analyzed based on the specific objectives of the study. Thus, socio-economic characteristics of cassava producers (objective i), gender roles of males and females in cassava production (objective ii) and constraints to effective cassava production by male and female respondents (objective iv) were analysed using descriptive statistics such as frequencies, percentages and mean. Selected socio-economic factors influencing gender participation in cassava production (objective iii) was been analysed using multiple linear regression model as used by Nwaobiala *et al.* (2019).

Table 2 (a): Socio-Economic Characteristics of Respondents in the Study Area

Socio-economic variables	Freq.	%	Mean
Sex			
Male	110	55.0	
Female	90	45.0	
Age (years)			
19-28	12	6.0	40 years

29-38	85	42.5	
39 -48	73	36.5	
49-58	20	10.0	
59 and above	10	5.0	
Marital status			
Single	13	6.5	
Married	172	86.0	
Divorced	2	1.0	
Widowed	13	6.5	
Household size (no. of persons)			
1-5	43	21.5	9 persons
6-10	113	56.5	
11 and above	44	22.0	
Level of education			
Primary education	84	42.0	
Secondary education	53	26.5	
Tertiary education	63	31.5	
Occupation			
Farming	160	80.0	
Business	21	10.5	
Civil servant	19	9.5	
Number of extension visits received			
Had no visits	113	56.5	
1-5	54	27.0	3 visits
6-10	21	10.5	
11 and above	12	6.0	
Access to loan			
Yes	55	27.5	
No	145	72.5	

Socio-Economic Characteristics of Cassava Farmers in the Study Area

Age: The distribution according to age showed that majority (42.5%) of the respondents were aged 28-38 years, 36.5% were between the age range of 39-48 years and 10.0% were between the age range of 49-58years, 6.0% of the respondents were 19-28 years old. The mean age of the respondents was 40 years. The results of the study revealed that respondents in the study area were in their productive and economically active age and are likely to be more technologically inclined. This also shows that cassava farmers and processors were agile young men and women who possessed the physical strength to sustain rigorous and arduous tasks required in farming and processing. This is in line with the findings of Adebayo *et al*., (2020) who reported the age significantly impacts labour productivity in cassava farming. Younger farmers (below 40 years) are more physically active and better suited for the demanding nature of cassava cultivation.

Marital Status

The results presented in Table 2 show that the married respondents constituted the majority (85.5%), whereas the singles and widowed had 6.5% each and another 1.0% were divorced. This shows that there was involvement of both men and women cassava farmers in the study. The high involvement of married cassava farmers and processors can lead to more availability of labour, as spouses and children may be involved in daily tasks, providing a steady workforce and reducing the need for external labour. Findings from the studies of Adebayo *et al,* (2021) reveal that married farmers tend to have higher productivity due to the availability of family labor, which is essential for labor-intensive tasks such as planting, weeding, and harvesting.

Household size

The results further show that 56.5% of the respondents had between 6-10 persons in the households, 22.5% had between 11 and above persons, and 21.5% had 1-5 persons. The mean household size of respondents was 9 persons. This implies that the respondents in the study area had medium-size household which shows the availability of family labour to assist in the cassava farming and processing business. Larger households provide more labour, which can be an advantage in labour-intensive farming activities (Suleiman & Abdulkarim, 2013).

The distribution according to level of education showed that 42.0% of the respondents had primary education, 31.5% had tertiary education and 26.5% had secondary education. The results showed that a good percentage of the respondents had higher level of education in the study area. Educated farmers and processors are more likely to adopt advanced farming and processing practices, leading to better management of resources and higher productivity. This implies a population that can easily learn and offers an easy communication platform for the transference of innovation with respect to better ways of producing and processing cassava.

Gender Roles in Cassava Production in the Study Area

Table 3 shows the distribution of respondents on gender roles in cassava production in the study area. The study revealed that male respondents were mostly involved in land preparation ($\bar{x}$= 2.81) as compare to their female counterparts who had $\bar{x}$ =0.10, herbicides application had mean ($\bar{x}$ of male = 2.78 while female$\bar{x}$ =1.43), harvesting (male $\bar{x}$ =2.47, female$\bar{x}$ =0.86), land tilling had mean of male ($\bar{x}$ = 2.35) while female was 0.60.). This shows that male respondents dominated their female counterparts in cassava production activities such as land preparation, herbicides application, harvesting, land tilling and pesticides application.

The female respondents were more involved in production activities such as weeding ($\bar{x}$ = 2.76) male had $\bar{x}$ = 0.42, planting female ($\bar{x}$ = 2.67) male= 0.05 and pests and diseases control (female $\bar{x}$ = 2.67 while male had $\bar{x}$ = 0.18). Results indicated that both male and female respondents were jointly involved in cassava production activities such as fertilizer application ($\bar{x}$ = 2.41) and transportation of farm inputs and outputs ($\bar{x}$ = 2.13). Female respondents dominated their male counterparts in weeding, planting and pests and diseases control.

Okoye *et al.,* 2016 noted that in cassava production, land preparation is often regarded as a physically demanding task that men are more suited for labor-intensive agricultural

activities Studies have shown that men dominate tasks such as clearing, plowing, and ridging, as these require the use of tools like hoes, cutlasses, or machinery, which are often controlled or accessed primarily by male farmers (IITA, 2014). Nweke *et al.* (2002) found that in many rural farming communities across sub-Saharan Africa, land preparation for cassava farming is culturally assigned to men, as it involves heavy lifting and significant physical energy. Similarly, Afolami *et al.* (2015) highlighted that in Nigeria, 70% of land preparation tasks are handled by men, reflecting the persistence of these traditional roles despite modernization efforts.

Table 3 Gender Roles in Cassava Production in the Study Area

cassava production activities	**Male**	**Female**	**Both male and female**
	Mean	**Mean**	**Mean**
Land preparation	2.81*	0.10	1.22
Tilling	2.35*	0.60	0.11
Weeding	0,42	2.76*	0.81
Fertilizer application	1.42	0.92	2.41*
Herbicide application	2.78*	1.43	0.07
Planting	0.05	2.67*	0.06
Harvesting	2.47*	0.86	1.40
Transportation of inputs and outputs	0.97	0.87	2.13*
Pests and diseases control	0.18	2.67*	0.03

Note: Any mean ≥ 2 meant high involvement, whereas any weighted mean of < 2 meant low involvement

* = high involvement

Analysis of hypothesis testing for difference between male and female roles in cassava production among respondents in the study area.

The study's null hypothesis stated that there was no significant difference between male and female roles in cassava production among respondents in the study area. The values of mean roles of cassava producers for male cassava producers were 10.5818 and 9.3111 for female cassava producers. The results of the t-test showed that t-calculated value was 3.668 and was greater than (> 0.005) indicating that there was significant difference in roles of cassava production between male and female cassava producers in the study area. Thus, the null hypothesis was rejected in favour of the alternative hypothesis. Consequently, there was significant difference between male and female roles in cassava production among respondents in the study area.

Table 4: Summary results of t-test of roles of male and female respondents in cassava production in the study area

Source of variance	N	Mean	SD	DF	T-cal	Decision
Male roles in cassava producers	110	10.5818	7.10263	198	3.668	Reject
Female roles in cassava producers	90	9.3111	3.93153	0.37863		

Selected Socio-Economic Factors Influencing Gender Participation in Cassava Production in the Study Area

Multiple linear regression analysis was used to determine the selected socio-economic factors influencing gender participation in cassava production as shown in Table 4. The coefficient of determination (R^2) value for male respondents was 0.358 which indicated that the independent variables explain 35.8% of the variability of the dependent variable, this means that only 35.8% of the independent variable will influence the dependent variable. The coefficient of determination (R^2) value for female respondents was 0. 387 indicating that the dependent variable was explained by 38.7% of the explanatory variables, this also means that only 38.7% of the independent variable will influence the dependent variable. The variables of age (t = 4.056) and total annual income (t = 2.754) influenced male respondents' level participation in cassava production and processing in the study area, whereas, the variables years of cassava production and processing (t = -2.202), number of years in social group (t = 2.574) and total annual income (t = 2.059) influenced female respondents' level participation in cassava production

Selected Socio-Economic Factors Influencing male and female Participation in Cassava Production in the Study Area

Explanatory variable	β- value	*St-e	t-value	β- value	*St-e	t-value
	Male			Female		
(Constant)	7.860	1.943	4.045	7.221	1.871	3.860
Age	3.537	.872	4.056***	.002	.052	.042
Education	.155	.531	.292	.907	.505	1.795
Years of cassava Production/processing experience	.090	.065	1.397	.138	.062	2.202**
Number of years in social group	-.149	.086	-1.727	.215	.083	2.574***
Number of times extension workers visited	.066	.100	.656	.136	.097	1.403
Total annual income	1.120E-6	.000	2.754***	8.068E-7	.000	2.059**
Amount of loan accessed	-4.315E-6	.000	-1.663	-3.915E-6	.000	-1.560

R Square = .358 (Male)
R Square =.387 (Female)

Note: *St-e = Standard error
*** Significant at 1%, ** significant at 5%
Dependent variable = Respondent's level of involvement of males and females in cassava production and processing activities. (Number of cassava production and processing activities involvement in /total number of cassava production and processing activities available in the study area X 100)

Constraints to Effective Cassava Production by Male and Female in the Study Area

The results of constraints to effective cassava production by male and female in the study area are presented in Table 5, The results revealed that male respondents had severe constraints in lack of mechanization and modern farming techniques ($\bar{x}$ = 2.48 as against that of female $\bar{x}$=2.26), high cost of bulking and transportation and poor road network ($\bar{x}$ = 2.45 while female $\bar{x}$= 2.86), pest and disease problem and high cost of inputs ($\bar{x}$ = 2.42 while female $\bar{x}$ =2.93), lack of quality planting materials ($\bar{x}$ = 2.38), and insufficient land ($\bar{x}$ = 2.34). Other constraints that militated against male respondents were lack of storage facilities ($\bar{x}$ = 2.29), limited access to credit ($\bar{x}$ = 2.27), inadequate capital and lack of training ($\bar{x}$ = 2.25), inadequate extension services ($\bar{x}$ = 2.20), high cost of labour ($\bar{x}$ = 2.14), climate change and weather variability ($\bar{x}$ = 2.13), poor markets linkages ($\bar{x}$ = 2.09) and problem of middle-men ($\bar{x}$ = 2.05).

The results revealed that female respondents on the other hand, had severe constraints in pest and disease problem ($\bar{x}$ = 2.93 male $\bar{x}$=2.42), lack of quality planting materials ($\bar{x}$ = 2.87 male $\bar{x}$=2.38), insufficient land (female $\bar{x}$=2.86 while male $\bar{x}$=2.34) high cost of bulking and transportation ($\bar{x}$ = 2.86 while 2.42), poor road network ($\bar{x}$ = 2.83), lack of storage facilities and high cost of labour ($\bar{x}$ = 2.82), high cost of inputs ($\bar{x}$ = 2.68), and inadequate extension services (female $\bar{x}$ = 2.53 male $\bar{x}$ =2.20). Others constraints faced by female respondents in the study area were inadequate information on improved production technologies ($\bar{x}$ = 2.47), inadequate capital ($\bar{x}$ = 2.44), climate change and weather variability and limited access to credit ($\bar{x}$ = 2.38), lack of training ($\bar{x}$ = 2.27), lack of mechanization and modern farming techniques ($\bar{x}$ = 2.26) and problem of middle-men ($\bar{x}$ = 2.17). This implies that both male and female respondents were faced with multitudes of constraints to effective cassava production in the study area.

The constraints faced by male and female cassava farmers have significant implications on the productivity, sustainability, and profitability of cassava farming. These constraints affect not only the individual farmers but also the broader agricultural economy

Table 5 Constraints to Effective Cassava Production by Male and Female in the Study Area

Constraint	Male Mean	Female Mean
high cost of bulking and transportation	2.45*	2.86*
Lack of quality planting materials	2.38*	2.87*
Pest and disease problem	2.42*	2.93*
Insufficient land	2.34*	2.86*
Poor road network	2.45*	2.83*
Lack of storage facilities	2.29*	2.82*
High cost of inputs	2.42*	2.68*

High cost of labour	2.14*	2.82*
Inadequate extension services	2.20*	2.53*
Lack of training	2.25*	2.27*
Inadequate information on improved production technologies	1.74	2.47*
Lack of mechanization and modern farming techniques	2.48*	2.26*
Climate change and weather variability	2.13*	2.38*
Limited access to credit	2.27*	2.38*
Inadequate capital	2.25*	2.44*
Poor markets linkages	2.09*	1.67
Problem of middle-men	2.05*	2.17*

Note: Any mean ≥ 2 meant serious constraint, whereas any weighted mean of < 2 meant serious constraint
* = Serious constraint

Conclusion

From the results of the study it was concluded that male respondents dominated their female counterparts in cassava production activities such as land preparation, herbicides application, harvesting. On the other hand, female respondents dominated their male counterparts in weeding and planting. Men performed tasks that were more energizing demanding than the women. The study also revealed male-dominate at involvement in in herbicide application, pest and disease control, harvesting, pesticide application, fertilizer application, tillage and land preparation compared to female respondents, these critical tasks may reinforce gendered divisions of labour, with men controlling key physical aspects of production activities and this can increase farm income. The findings on constraints to effective cassava production by male and female in the study area indicate that the main constraints include high cost of bulking and transportation, lack of quality planting materials. insufficient land, inadequate extension services, poor road network among others.

Recommendations

Based on the findings of the study the following recommendations are made:

The government should promote safe agricultural policies and practices, strengthen awareness of the risks associated with pesticide and herbicide application, targeting both genders. Provide protective gear and training on safe usage and alternatives, emphasizing the importance of safety for everyone involved.

Promotion of equal access to resources should be encouraged by government and non-governmental organization to curtail the constraints. Ensure that both men and women have access to credit, land, farm inputs (e.g., herbicides, pesticides, fertilizers), and technical support to perform their respective roles effectively. Advocate for gender-sensitive policies that address the unique challenges faced by each group in cassava production.

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