



## Research Article

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## Assessment of Cassava Production towards Household Food Security in Bwari Area Council, Abuja, Nigeria

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**Abstract:** The paper assessed cassava production towards household food security in Abuja, with specific reference to Bwari Area Council, Abuja, F.C.T. There were four sections to the region namely: District A, District B, District C and District D. Survey research stratagem will be implemented with questionnaire as main tools for data gathering which will be distributed to twenty-five families per region, picked randomly making total of 100 families that will be studied. Data was evaluated utilizing descriptive statistics and t-test analysis was used to evaluate the impact of socioeconomic and socio ecological factors on the production of cassava. The results showed a t-value of 20.772 which a deviation from the normal expectation that the constraints had no significant effect on the production of cassava. This indicates that with rising impact of this factors there will be decrease in the production of cassava. The result also showed that, inadequate resources for farming was the main constraint to the farming of cassava as 100.00% of the respondents indicated as a factor affecting production. Following this was inadequate information on improved varieties (91.00%). The study however recommends that government should employ and train more agricultural graduates. More extension workers need to be hired in order to significantly reduce the problem of the extension workers to farm families..

**Keywords:** Household, Cassava, Food, Security, Production.

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## INTRODUCTION

Food security refers to having constant physical and financial access to enough food to meet dietary requirements for a successful and healthy existence. A family is considered to be food secure if none of its members experience hunger or fear of it. Food insecurity frequently stems from poverty and hinders the growth and prosperity of families, communities, and entire nations. Long-term malnutrition inhibits cognitive development, hampers growth, and makes people more susceptible to sickness (USAIDS, 2016). Today, more than 800 million people worldwide suffer from nightly hunger, the majority of them are Small-scale farmers who depend on agriculture for their livelihood and that of their family. Nearly 75% of the poor in developing nations live in rural areas, despite an explosive development in urban slums over the past ten years. It has been demonstrated that the agricultural sector's expansion, from farm to fork, is at least twice as successful in reducing poverty as growth in other sectors (Sennuga, *et al.*, 2020a).

The ability to obtain enough wholesome food that meets everyone's dietary needs and preferences for an energetic and productive life is termed as food security, according to the 1996 World Food Summit 2022.

Food security is primarily comprised of four factors:

- Food availability is concerned with the "supply side" of food security and is influenced by food production levels, stock levels, and net trade.
- Economic and physical access to food: Food security at the household level is not always ensured by a sufficient supply at domestic or foreign food supply. Concerns about poor food availability have led to a stronger governmental emphasis on incomes, expenditure, markets, and prices in order to achieve food security goals.
- Usage of food: Utilization is the term used to describe how the body uses the various nutrients included in diet. Individuals that receive enough care and feeding will consume enough energy and nutrients as a result of proper food preparation, a varied diet, and intra-household food distribution. This defines a person's nutritional condition when coupled an effective biological absorption of the food they consume.
- The remaining three aspects' long-term stability Even if you now consume an acceptable amount of food, you are still seen as having food insecurity if you occasionally have

insufficient access to food, putting your nutritional status at danger. Your level of food security may be impacted by unfavorable weather conditions, unstable political environments, or economic issues (such as increased food prices and unemployment).

In contrast to transitory food insecurity, which is typically short-term or temporary and refers to brief periods of extreme scarcity of food availability and access, persistent food insecurity is a protracted or persistent situation where humans are unable to eat enough to meet their minimal needs over a prolonged time frame (Ana *et al.*, 2022). It is widely accepted that an essential but not adequate requirement for nutrition security is food insecurity. Poor interpersonal, cognitive, and psychological health outcomes are strongly correlated with food shortages, nutritional insecurity, and other factors (Obagbemi *et al.*, 2022). In addition to food security, nutrition security also refers to care, health, and hygiene habits (Ezike *et al.*, 2022). In order to support a long and active life for every member of the family members, the FAO defines nutrition security as "a scenario that emerges when safe access to a sufficiently nutritious diet is paired with a hygienic environment, competent medical services, and care" (FAO *et al.*, 2012).

### Evolution of Food Security

Food security is a significant issue with widespread acknowledgment. It was initially identified as a concept of food supply because at the time, food crises sparked worries that a lack of food supplies globally might lead to political instability (Ana *et al.*, 2022). At the time, it was acknowledged that obtaining food remained a crucial aspect of understanding what food security meant. But, it was also understood that having access to food did not necessarily depend on having access to food on a family level (Jones *et al.*, 2013). However, Sennuga *et al.* (2020b) believed that because of the rise in food prices and the drop in the need for paid labor, the poor typically lack "entitlement" to food. As a notion, food security continued to develop, including not only national levels but also household and individual distributions (Nimzing *et al.*, 2015). With the realization that the household is a crucial social unit through which people obtain their food (Ike *et al.* 2015), this food access at the household level has continued to acquire prominence. Food consumption, which considers variations in food distribution within homes, food quality across the nation, and individual household member variations in nutrient absorption and metabolism, was also acknowledged as a third component of food security.

Furthermore, the 1996 World Food Summit further amended the concept of food security and made evident the significance of diet quality at the person level, not just at the household level (FAO, 1996). The FAO (1996) concept of food security later became the

generally accepted definition, incorporating not only the three domains of food security (availability, access, and utilization) discussed above, but also the phrase "at all times," which reaffirmed the fourth, less widely acknowledged domain of food security, i.e., the stability of food security over time (Obagbemi *et al.*, 2022).

### Link between Food Security and Development

National development is simply the continual raising of the country's per capita income-based measure of the level of living in the nation. Sustained economic growth, which is characterized by high production resource productivity and efficiency, results in economic development (Ana *et al.*, 2022) No nation can have economic progress without agricultural development, which is a universally acknowledged reality. This is accomplished by providing an abundance of crops and livestock (food accessibility, affordability, food utilization, and food quality), ensuring food security and sustainability, and meeting local consumption, providing raw materials for the processing industries, maintaining national reserves, and exporting (Ayinde, 2019).

Since the positive linear link between them, food insecurity and its derivatives are employed as indices of economic progress (Ezike *et al.*, 2022), which explains why it is prominently mentioned in the SDGs. Instances of development index linked to food security include, but are not restricted to:

- The occurrence of retardation and withering in young children.
- The fatality rate for kids under the age of five.
- Rate of neonatal death
- Rate of maternal morbidity and death
- The percentage of all water resources that were used.

Food security must continue to increase for Nigeria to prosper. Increased output in the mining, metallurgy, and industrial sub-sector, particularly if it encourages export (as in the case of Nigeria, which is a net exporter of urea), must unquestionably help Nigerians in general put food on the table. No economy can grow steadily without enhancing its human resources component (Ayinde, 2019; & Sennuga *et al.*, 2021).

### Cassava Production's Impact on Rural Household Food Security

In Nigerian households, cassava is a preferred staple that cuts across cultural and social boundaries. It is crucial as a crop for food, but it is much more crucial as a means of income for rural people. Compared to other staples, it provides employment and cash income to the greatest number of households (FAO, 2009), and because it can tolerate poor soil, unfavorable weather, pests, and diseases outnumber all other major staples in Nigeria, it is encouraged to be grown even by resource-poor households (Sennuga *et al.*, 2021; & Nwali, *et al.*, 22).

Although cassava lacks vitamins, protein, and other essential minerals on its own, the millions of

Nigerians who consume it can benefit from better nutrition thanks to the bio fortification of cultivated cassava cultivars. Moreover, it ranks second in terms of demand and is Nigeria's most important crop by output (FAO, 2014). Around 54% of the world's cassava is produced in Africa, with Nigeria dominating the market with a production of about 54.8 million MT in 2014 (FAO, 2014). The nutritional status of the rural population may suffer as a result of the rising food demand brought on by population growth.

IITA (2017) argued that because agriculture is the main industry directly supporting the livelihood of the majority of food insecure households, achieving food security in Nigeria necessitates new and profitable investments, innovations, and governmental initiatives in this field. As a result, one solution to this issue is to boost the financial stability of the farmers by increasing and greatly expanding the nation's output of enhanced cassava as a subset of food crops. By doing so, they may earn more money and enjoy a higher standard of living. Cassava has consistently grown by more than 3% annually on a global scale. In 2018, the world produced about 278 million tonnes of cassava, with Africa producing about 170 million tonnes (or about 56% of the global output), according to FAO (2018). At the same period, Nigeria produced about 60 million tonnes (Sennuga *et al.*, 2021).

The sixteenth century saw the introduction of cassava, a perennial woody shrub with an edible root that was first farmed in South America, to Nigeria (Shehu *et al.*, 2019). However, because it tends to deplete soil nutrients and expose farms to erosion, cassava is viewed as a staple food for the underprivileged (Hershey *et al.*, 2020). Due to this, a significant amount of cassava crops are produced on marginal areas with poor topography, which are typically uncompetitive (not good for other crops) and some others are not tractor friendly. The sort of land tenure structure in Nigeria and other sub-Saharan African nations does not permit for huge farm holdings that are suited for mechanization, which adds another difficulty to cassava production. Most cassava farmers cultivate small farms that are either uneconomical or unsuitable for mechanization. However, according to Abass *et al.* (2015), employing better inputs alone won't significantly increase cassava yield in Nigeria without mechanization. Despite these difficulties, cassava is one of the staple foods that are growing the quickest in countries that consume it, and it has continued to be well-liked by farmers. Even as industrial demand is steadily rising (Food and Agricultural Organization FAO, 2018).

Despite being the world's top cassava producer, Nigeria consumes more than 90% of the cassava it produces (Abass *et al.*, 2015). More than 80% of the world's cassava products, including pellets and starch, are imported into China (FAOSTAT, 2019). The existing bilateral trade agreement between Nigeria and China may encourage Nigeria to export huge quantities of

cassava to China, but the country's current output of the crop cannot even satisfy domestic demand for food and industrial usage. Cassava producers should be encouraged to increase production as a result of this supply gap. Nearly 84% of Nigeria's domestic cassava crop is available for consumer consumption, while the remaining 16% is available for industrial usage (Salau *et al.*, 2019).

Food is necessary for life. It takes up a sizable portion of ordinary household spending in Nigeria. Food security is crucial for every nation in the world. When everyone, at all times, has sufficient physical, civic, and financial resources to obtain and eat food that satisfies their dietary requirements and food inclinations for an active and beneficial existence, this is referred to as food security (Salahu *et al.*, 2019). Food needs to be available, usable, and accessible for food security to exist at the national, regional, and local levels. The accessibility of food includes the amount of wholesome, nutritious food that is produced domestically or imported from elsewhere.

Food accessibility is not guaranteed by food availability. For food to be available, people or families need to have enough money or other resources to buy good food whenever they need it, and for it to be used, they need to eat enough food of sufficient quality and quantity (Adangara *et al.*, 2022). In a broader sense, these concepts of accessibility, availability, and utilization encompass the supply, demand, and sufficiency of food at all times. On the other hand, food insecurity happens when there is actual food inaccessibility, inadequate social and economic access to enough food, and/or poor food conversion. If not addressed, food insecurity may increase a person's susceptibility to illnesses and parasites, decrease their physical stamina for labor-intensive tasks, reduce their ability to benefit from educational and training opportunities, and generally make them feel lethargic, unfocused, and lifeless. These have the effect of decreasing human productivity over the long and short terms, sacrificing output and income, and making it harder for families and countries to break the cycle of poverty (Lai-Solarin *et al.*, 2022).

In addition to being used as human food, it is also widely used in industry for things like chips, flour, starch, and leaves with a strong export potential. Despite the significant roles that cassava plays, it does not offer a balanced diet, and as a result, regular eating of it as a staple food without the addition of protein or other food groups may result in malnutrition. The farming households that generate the majority of the cassava have little extra money available to meet the standard for food security, which is the availability of 2260 Kcal of energy and 65 G of protein per person daily (Ahmed, 2016).

The specific objectives of this study are to:

- Describe the socioeconomic traits of the research area's respondents;

- Identify food products produced from cassava and their frequency of consumption by families in the study area;
- Ascertain constraints to the effective cultivation of cassava in the study area;
- Evaluate the impact of socioeconomic and socio ecological factors on the production of cassava.

## MATERIAL AND METHOD

Abuja, the Federal Capital Territory, Nigeria, situated “North of the confluence of the Niger River and Benue River”. The boundaries are with Niger state to the “West and North, Kaduna to the Northeast, Nassarawa to the east and south and Kogi to the southwest”. With a land mass of approximately. It is “lying between altitude 8.25 and 9.20 north of the equator and longitude 6.45 and 7.39 east Greenwich meridian, Abuja is geographically located in the centre of the country” and it is made up of six area council, which are Gwagwalada, Bwari, Kuje, Kwali, Abaji and AMAC ([en.m.wikipedia.org](http://en.m.wikipedia.org)). The population of federal capital territory is estimated at 3,464,123 (<http://worldpopulationreview.com>). Two distinctive climate seasons exist. In the federal capital territory, the rainy season beginning from May to October and the dry season from November to April ([www.worlddata.infoclimate](http://www.worlddata.infoclimate)). This research was specifically carried out in Bwari Area Council of the Federal Capital Territory (FCT), in North Central Nigeria. The paper assessed cassava production towards household food security in Abuja, with specific reference to Bwari Area Council, Abuja, F.C.T. The area was divided into four regions namely: District A, District B, District C and District D. Survey research stratagem will be implemented with questionnaire as main tools for data gathering which will be distributed to twenty-five families per region, picked randomly making total of 100 families that will be studied

### Sampling Techniques and Sample Size

The primary data for this study was obtained from the small holder farmers through the use of

questionnaire. As already stated, this study was carried out in the Bwari Area Council (FCT). Small holder farmers were handed questionnaires at several locations within the area council. Dutse, Bwari, Zuma I and Zuma II are four rural region/wards that were purposefully chosen for the study. A total of one hundred (100) questionnaires were distributed so as to obtain information from the respondents and all the (100) of them were successfully retrieved, accounting for 100% of the total. As a result, a total of 100 people took part in the study.

## RESULT AND DISCUSSION

### Socio economic characteristics of the farmers

Table 1 below shows the socio-economic traits of respondents in the study area. The result revealed that most of the respondents interviewed were farmers with 43%, 21% civil servant while 36% were self-employed. The ages of respondents between 21-30years were 5% and 61% represented ages of respondents between 31-40 years and 41-50 years while 22% represented 51-60 years. The outcome demonstrates that the majority of the farmers are middle age of between 41-50 years and are active and energetic. This implies that middle-aged farmers are highly productive, have the ability to take risks. 62% of the respondents were male while 38% were female. 68% of the respondents were Christian while 32% were Muslim. None of the respondents were single while 75% were married, 7% divorced and 18% widowed.

Table 1 further revealed that 23% of respondent had primary education, 36% had secondary education while 41% had post-secondary education. The size of household of respondents between 1-5 were 27%, 6-10 were 43% while 11 and above were 30%. 24% of respondents annual income on cassava was less than ₦100,000, 66% earned between ₦100,000-₦199,000 while only 10% of the respondents earned above ₦200,000.

**Table 1:** Socio economic characteristics of respondents

Variable	Frequency	Percentage (%)
<b>Occupation</b>		
Farming	43	43.0
Civil servant	21	21.0
Self employed	36	36.0
Unemployed	0	0.0
<b>Age</b>		
21 – 30	5	5.0
31 – 40	12	12.0
41 -50	61	61.0
51 – 60	22	22.0
61 and above	0	0.0
<b>Sex</b>		
Male	62	62.0
Female	38	38.0
<b>Religion</b>		

Christianity	68	68.0
Muslim	32	32.0
Others	0	0.0
<b>Marital status</b>		
Single	0	0.0
Married	75	75.0
Divorced	7	7.0
Widowed	18	18.0
<b>Educational level</b>		
Primary	23	23.0
Secondary	36	36.0
Post-secondary	41	41.0
<b>Household size</b>		
1 – 5	27	27.0
6 – 10	43	43.0
11 and above	30	30.0
<b>Annual income on cassava</b>		
Below ₦100,000	24	24.0
₦100,000 – ₦199,000	66	66.0
Above ₦200,000	10	10.0

Field survey, 2023

#### Level of consumption of cassava products by farming households in the study area

The outcomes presented in table two shows the type of food products obtained from cassava and mean rating of their frequency of consumption. The results indicated that garri with a mean rating of 2.78 had the highest frequency of consumption, followed by fufu (2.66), abacha (2.09) and cassava flour (1.89). The least consumed cassava products in the study area was cassava starch with a mean of 1.30. These results indicated that cassava products contributes greatly to the food security of households in the study area since there was a high acceptability for the products produced from cassava in

the study area. This result also implies that judging from the level of consumption of cassava, the families can be considered as food secured. The result showed that many of the families consume garri. This means that the more the quantity of garri consumed by the household, the more likely the household to maintain food security. Interestingly, the other products such as fufu were highly accepted by the households. This suggests that the more the household consumes fufu and other cassava products, the more the household is food secure. This could probably due to the fact that consumption of fufu and other cassava products provide a balance diet and meet the food requirement of most households.

**Table 2:** Mean rating of the level of consumption of cassava products by farming households in the study area

Products from cassava	Mean	SD
Garri	2.78	0.17
Fufu	2.66	0.25
Starch	1.30	0.58
Abacha	2.09	0.31
Cassava flour	1.89	0.61

Field survey, 2023

#### Factors affecting the production of cassava among farming households in the study area

Results of the survey presented in table 3 showed the factors affecting the production of cassava in the study area. According to the farmers, inadequate resources for farming was the main constraint to the farming of cassava as 100.00% of the respondents indicated it as a factor affecting production. This was followed by Inadequate information on improved varieties (91.00%), High cost of input (90.00%), Low

extension services (88.00%), Poor pricing (83.00%), Inadequate access to modern farm implements and machineries (79.00%), Transportation problem (71.00%), Poor soil fertility (68.00%) and Flood incidence (23.00%). Various socio-economic and ecological challenges of cassava farming were also examined and the results showed that lack of resources was the major factor affecting production. These findings support the findings of existing studies who found various social, economic and ecological factors

influencing cassava farming such as farm size, cassava cuttings, literacy level, availability of fertilizer, climatic

change, female dominance in agriculture, and land disputes (Olaosebikan *et al.*, 2019).

**Table 3.** Factors affecting the production of cassava among farming households in the study area

Constraint	Frequency	Percentage (%)
Inadequate resources for farming	100	100.00
Poor soil fertility	68	68.00
High cost labour	78	78.00
Inadequate information on improved varieties	91	91.00
Low extension services	88	88.00
Transportation problem	71	71.00
Poor pricing	83	83.00
High cost of input	90	90.00
Inadequate access to modern farm implements and machineries	79	79.00
Flood incidence	23	23.00

Field survey, 2023

**Impact of socioeconomic and socio ecological factors on the production of cassava**

The results presented in table 4 below showed the effect of constraints as identified in this study as listed in table 3 above on the type of crops farmed by the farmers in the study area. The results showed a t-value of 20.772 which a deviation from the normal expectation that the constraints had no significant effect on the production of cassava. This means that with increasing

impact of this factors there will be no decrease in the production of cassava. Results in table 5 further illustrate the effect of social economic characteristics on the production of cassava among households in the study area. It was indicated that socioeconomic parameters have significant effect on the production of cassava. This social economic parameters may include age of the farmer, gender, level of education, income level and farming experience.

**Table 4:** Paired Samples Test of Constraints against the Major Type of Crop Cultivated

	Paired Differences				t	df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower				Upper
Y – X	3.90000	1.87757	.18776	3.52745	4.27255	20.77299	0.000	

Field survey, 2023

**Table 5:** Paired Samples Test of Socioeconomic Characteristics against Reasons for Cultivating Cassava

	Paired Differences				t	df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower				Upper
Y – X	7.88000	2.73503	.27350	7.33731	8.42269	28.811	99	0.000

Field survey, 2023

**CONCLUSION**

Following the result of the research, the following conclusions are made. The socio economics characteristics in the study area showed that there are more males in cassava farming enterprise than females. Majority of this farmers are in their youthful age and there more married with household size of 6-11. Majority of them has post-secondary education. The research concluded that insufficient resources for farming was the main constraint to the farming of cassava with all of the respondents indicated it as a factor affecting production. The research concluded that results indicated that garri with a mean rating of 2.78 had the highest frequency of consumption. The research also concluded that constraints had no significant effect on the production of cassava. This indicates that with rising impact of this

factors there will be no decrease in the production of cassava.

**Recommendation**

The article suggests that the government hire and train more young agricultural graduates in light of the findings. To considerably lessen the issue of extension workers to farm families, more extension workers must be hired. In order to effectively supply extension services to rural farmers, the Federal Ministry of Agriculture should make an effort to increase fiscal support for the program. Finally, the Federal Government should aid in the growth of other development partners, including NGOs, the business sector, academia, and farmer cooperative societies, who provide extension services to rural farmers.

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