



Socio-Economic Determinants of Gender Participation among Sweet Potato Farmers in Anambra State of Nigeria

Aboajah, F. N. and Ekeledo, P. I.

National Root Crops Research Institute, Umudike

Correspondence author's email: aboajahfriday@yahoo.com

Abstract

The study assessed the determinants of gender participation among sweet potato farmers in Anambra State, Nigeria. A total of 120 farmers were selected across the state using a multi-stage sampling technique. Primary data were collected on the socio-economic characteristics and other quantitative variables relevant to the study using a well-structured questionnaire and personal interview. The data were analysed using descriptive statistics, multiple regression technique was used to analyse the determinants of gender participation. Results revealed that 70.8% of males participated in land preparation, while 29.2% took part in the same activity. Results also revealed that 100%, 43.3%, 33.3%, 40%, 53.3% and 31.7% of males participated in mound-making planting, fertilizer application, weeding, harvesting and marketing activities while 0%, 56.7%, 66.7%, 60%, 46.7% and 68.3% women participated in the same activities. Six variables were investigated as the determinants of socio-economic variables affecting gender participation among sweet potato farmers. Five (5) variables were found to be statistically significant as regards the factors influencing personal and socio-economic characteristics among sweet potato farmer's participation. They are age ($P < 0.05$), level of education ($P < 0.05$), household size ($P < 0.05$), farming experience ($P < 0.05$) and farm size ($P < 0.05$). It recommends that research and extension should focus on both male and female sweet potato farmers with appropriate techniques to improve participation among sweet potato farmers, which would enhance their income and standard of living.

Keywords: Gender, participation and sweet potato farmers

Introduction

Sweet potato (*Ipomoea batatas* (L) (Lam) is an important secondary food crop for many people whose staple diet is based on cereals, particularly maize (Gakonyo, 1993). It is an important food security crop especially when maize is in short supply or has years of drought (Mutuura *et al.*, 1992). They are rich in beta carotene, a precursor of vitamin A and as such important in alleviating vitamin A deficiency in nutritional disorders (MoA and UNICEF, 1995). Sweet potato is a root crop that is adapted to a wide range of environments and a staple food in Nigeria which produces over 3.5m Metric tons annually (FAO, 2008). Sweet potato is cultivated on 1.03m hectares in Nigeria (FAO, 2007). Njoku (2000) found out that farmers' yields are low (8t/ha) but suggested could be increased up to (30t/ha) with improved management practices. (Woolfe, 1992), said that sweet potato has a high nutritive value and is rich in vitamin A which is only equal to carrot. Sweet potato is an important staple food crop grown for its edible roots and leaves as a protein-rich vegetable orange-fleshed, Sweet potato is grown mainly for food security, and is also bio-fortified, which offers one of the highest sources of B-carotene (Woolfe, 1992). Sweet

potato roots are highly perishable and cannot be stored for a long period after harvesting. (Karuri and Ojijo, 1994). The storage system regularly practised in Nigeria is in-ground storage by which farmers keep un-harvested mature Sweet potatoes in the field until they are needed for consumption or sale. (Onwueme, 1982). Traditional storage as underground pits or baskets covered with grasses has been reported in Uganda, Kenya and Malawi (Deverau and Bockett, 1994). High levels of Sweet potato weevil infestation are severe and spoilage is common with these storage methods. Fresh potatoes can be stored for several months using artificial air-conditioned stores (Picha, 1987). However rural farmers cannot afford this expensive technology. Rural-based cheap and simple storage methods are therefore needed. Sweet potato (*Ipomoea batatas* (L) (Lam) is an important staple food crop grown for its edible roots and leaves as a protein-rich vegetable orange flesh. Sweet potato is grown mainly for food security and cash. The productivity of this important food security crop is relatively inexpensive when compared with other root and tuber crops, and this is attributed to low input requirements, especially land and materials. Sweet potato as a food crop in Nigeria and other parts of the

African countries is becoming expensive in urban areas as production has not kept pace with the increase in population leading to demand exceeding supply. Constraints of sweet potato production in Nigeria are high cost of labour, poor market price, post-harvest losses due to pest and disease infestation, scarcity of fertilizer, and herbicides, and high cost of vines among others. There is need to increase the production of sweetpotato production to satisfy local consumption and experts demand to boost foreign exchange earnings. Based on this, this study is investigating the contribution and participation of gender among sweetpotato farmers in Anambra State, Nigeria.

Participation

According to (Guijt, 1991 and Aboajah, 2017), participation means putting responsibility in the hands of farmers to determine, share, enhance and analyse their knowledge of life in their local conditions. This means being accountable, effective and sustainable in their decision-making. Principle participation helps people to help themselves. Participation is defined as a process of equitable and active involvement of all stakeholders, planning, implementation, monitoring and evaluation of development activities (World Bank, 1992). There are levels of participation ranging from sample consultation, joint decision making and self-management by stakeholders themselves (Aboajah, 2017). According to (Montgomery, 1983, Guijt, 1991 and World Bank, 1994), participation is one of the critical components of success.

Gender

Gender refers to the social definition of roles between men and women. Indeed, gender roles and relations exist everywhere, but in varying conditions. There is a gender division of labour in the management of farms in all societies. Gender roles have important implications for the management of farms and technology development. Gender greatly influences the selection of participants and beneficiaries of surveys and experiments.

Most women in rural societies are often primarily responsible for ensuring household food security, health and family continuity. Generally, women are responsible for ensuring sufficient food and medicine all year round. They also engage in the production of Mino crops while men are engaged in major crops. Women are also engaged in storing, processing seeds, and grains, and preparing food ensuring adequate nutrition for all household members. Cash crops especially those for markets are under the control of men.

Methodology

Study Area

The study was carried out in Anambra State. The state is bounded by Delta State to the West, Imo State to the South, Enugu State to the East and Kogi State to the North. It has an estimated population of close to 5,000,000 million people (National Population Commission, 2006). Anambra state lies at the longitude 6°35E and 7°21E and latitudes 5°38N and 6° 47E

(Wikipedia.org/wiki). Anambra State comprises 21 local government areas with mostly farmers, fishermen, craftsmen and traders. Crops planted are majorly sweet potato, yam, cassava, rice cocoyam, vegetables, etc. The major sweet potato-producing areas are Anambra East, Anambra West, Ayamelum, Awka North and Orumba North and South Local Government areas (ASADEP, 2003) Anambra State experiences two distinct seasons. The rainy season and dry season. The rainy season starts from April to last November and the dry season begins late November to March. (<https://nipc.gov.b/Nigeria-states/anambra-state/>).

Sample selection

The targeted population for this study was sweet potato farmers in Anambra state. Anambra state comprises of four zones; Awka, Anambra, Aguata and Onitsha zone. Multi-stage sample techniques were used for this study. Anambra Zone was purposively sampled for this study which constitutes Ayanelum and Anambra East blocks. These two blocks were purposively selected based on their popularity in sweet potato production. These circles include Omor, Omasi and Umuobo in Ayemelum block; Aguleri Otu, Nnado, and Igbariam circles in Anambra East. In the block of Anambra East constituting Aguleri Otu, Nnado and Igbariam, 20 farmers were randomly selected making 60 farmers and the same was done in Ayamelum block consisting of Omar, Omasi and Umubo making 60 farms. A total of 120 farmers were used and randomly selected using a structured questionnaire to collect data and personal interviews.

Data Collection

Data were collected using a structured questionnaire and personal interview: three enumerators and two extension agents were used for data collection. Data collection covered the socio-economic characteristics of the farmers, participation involvement of male and female sweetpotota farmers, labour, farm size and sales of sweetpotato.

Analytical Techniques

The data collected were analysed using descriptive statistics and multiple regression equation to determine gender participation among sweet potato farmers in Anambra State.

The model is specified as follows;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_6 X_6 + \mu$$

Y = Quantity of sweet potato produced (kg)

A = Constant Term

β_1 = β_6 regression coefficients

X_1 = Age (years)

X_2 = Sex (male=1, female=0)

X_3 = Farm size (in hectares)

X_4 = Farming experience (years)

X_5 = Household size (number of people in the household)

X_6 = Level of education (education attainment)

μ = Error term

Results and Discussion

Findings in Table 1 revealed that the mean age of

sweetpotato farmers was 43 years. This shows that farmers are still in active age. Sixty-nine (69%) of the farmers were male and 31% were female. This implies that male farmers dominated the production of sweet potatoes because of energy-consuming operations like land clearing and ridging. This finding agreed with Oluwatusin and Shitu (2014) that men dominate energy-consuming operations. The study further indicates that 60% were married, 23.3% single and 16.7% widowed. The average size for the households was 4 persons. This reveals that farmers have moderate family size and this is expected to influence sweet potato production positively. Since families constitute a major source of labour in sweet potato production, decisions are made by the family in carrying out field operations. Table 1 reveals that 25% attained primary school education, 42.5% secondary school education, 12.5% had a Diploma, 10.8% first degree and above and 9.2% had no formal education. The farmer's education attainment helped them positively use technologies like fertilizer and agro-chemical which have the potential to increase production. The average farming experience was eight (8) years. This shows that farmers have a lot of experience in sweet potato production. Farmers' average farm size per farmer was 2.6ha, which implies that sweet potato farmers are still operating small-scale farming. This agreed with Onyebinama (2014), that farmers with less than 5ha of land as small-scale farmers. Table 1 further revealed that hired labour is 56%, followed by family labour 38.3% and exchange labour 11.7%. This indicates the majority of the labour used is hired which puts a financial burden on the farmers. Majority source their agro-inputs from Open markets 54.2%, input dealers 8.3%, ADP 5.8% and other farmers 31.7%. Forty percent (40%) of the farmers had access to extension agents while 60% had no access to extension agents. About 43.3% had access to credit while 56.7% had no access to credit. Table 1 shows that 46.7% are actual farmers, 10% are civil servants, 23.3% are traders and 20% are pensioners. Finally from Table 1, 45.8% inherited their lands, 20% purchased, another 20% rented and 14.2% were given.

Gender Participation among Sweetpotato Farmers

Table 2 reveals the gender participation among sweet potato farmers. The findings showed that 70.8% of men were involved in land preparation while 29.2% of women were involved in the same activity. Ridge making involved only males 100%, while no female was involved in ridge making. The study further reveals that 56.7% of the females were involved in planting activities while 43.3% of males were involved in the same activity. However, the study revealed that 33.3%, 40%, 53.3% and 31.7% of males were involved in fertilizer application, weeding, harvesting and marketing activities. The study further revealed that male farmers participated more in sweetpotato operations compared to females. This study suggests that both male and female sweet potato farmers should be given equal treatment with appropriate technologies and information.

Socio-Economic Determinants Influencing the Gender Participation of Sweet Potato Farmers

Table 3 revealed that the socio-economic characteristics of farmers had a significant influence on gender participatory activities [$F(9,350) = 28.089$; <0.05]. The result showed that the variables jointly predicted farmers' participation ($R^2 = 0.419$) and jointly accounted for 40.4% variance (adjusted $R^2 = 0.404$) in predicting farmers' participation put together. This implies that other characteristics not taken into consideration in this model may have accounted for the remaining 59.6% variance. Six variables were investigated, and five (5) variables were found to be statistically significant as regards the socio-economic gender participation activities. The contribution of age ($\beta = -190$, $t = -3.939$; $P < 0.05$), farm size ($\beta = -0.305$; $t = -6.779$; $P < 0.05$), farming experience ($\beta = 0.117$; $t = 2.694$; $P < 0.05$), household size ($\beta = -0.108$; $t = -2.507$; $P < 0.05$), level of education ($\beta = -0.202$; $t = -3.804$; $P < 0.05$). Table 3 further revealed the extent of the product of each of the socio-economic characteristics of farmers' participation in activities based on t values. Farm size was the socio-economic characteristics that mostly predicted gender participation and was followed by age, level of education, farming experience and household size. The prediction above revealed that both males and females strongly participated in sweet potato farming activities.

Conclusion

The study concluded that both male and female participants were actively involved in sweet potato farming activities. The males dominated the land clearing, ridge making and harvesting, while the females dominated the planting, fertilizer application, weeding and marketing. Out of six (6) variables investigated, five (5) variables were found to be statistically significant as regards the factors influencing gender participation. They were age ($P < 0.05$), farm size ($P < 0.05$), farming experience ($P < 0.05$), household size ($P < 0.05$), and level of education ($P < 0.05$). It is recommended that gender participatory research should focus attention on both males and females with appropriate technologies to improve participation and enhance their income and standard of living.

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Table 1: socioeconomic distribution characteristics of respondents. Anambra (n=120)

Variables	Frequency	Percentage (%)	Mean
20-30	18	15	43 years
31-40	30	25	
41-50	48	40	
51-60	15	12.5	
61-70	9	7.5	
Sex			
Male	76	63.3	
Female	44	36.7	
Marital Status			
Single	28	23.3	
Married	72	60.0	
Widowed	20	16.7	
Household			
1-2	24	20	4 persons
3-4	44	36.7	
5-6	52	43.3	
Level of Education			
No Formal education	11	9.2	
Primary	30	25	
Secondary	51	42.5	
OND/NCE	15	12.5	
First-degree and above	13	10.8	
Farming Experience			
1-3 years	24	20	8 years
4-6 years	20	16	
7-9 years	24	20	
10-12 years	26	21.7	
13-15 years	26	21.7	
Farm Size			
<1-1ha	18	15	2.6ha.
2-3ha	80	66.7	
4-5ha	22	18.3	
Sources of Labour			
Family	46	38.3	
Hired	60	50	
Exchange	14	11.7	
Source of Agro input			
Input dealers	10	8.3	
Other farmers	38	31.7	
ADP	7	5.8	
Open market	65	54.2	
Access to extension services			
Yes	48	40	
No	72	60	
Access to credit			
Yes	52	43.3	
No	68	56.7	
Occupation			
Farming	56	46.7	
Civil servant	12	10	
Trading	28	23.3	
Pensioner	24	20	
Source of land			
Inherited	55	45.8	
Purchased	24	20	
Rented	24	20	
Gifted	17	14.2	

Source: field survey, 2022

Table 2: Participation according to Gender among Sweetpotato Farmers in Anambra State

Activities	Male		Female	
	Frequency	%	Frequency	%
Land preparation	85	70.8	35	29.2
Ridge making	100	100	0	0
Planting	52	43.3	68	56.7
Fertilizer application	40	33.3	80	66.7
Weeding	48	40	72	60
Harvesting	64	53.3	56	46.7
Marketing	38	31.7	82	68.3

Source: field survey, 2022

Table 3: Multiple regression analysis of the determinants of socio-economic variables of gender participation of sweet potato farmers in Anambra State

Variables	Unstandardized coefficients		Standardized coefficients	
	B	STD Error	Beta	T
Constant	31.194	3.351		9.308
Age	0.-591	0.150	0.-190	-3.939*
Sex	-1.194	0.712	0.-078	-1.677
Farm size	-2.285	0.337	0.-305	-6.779*
Farming experience	0.485	0.180	0.-117	2.694*
Household size	0.-602	0.240	0.-108	-2.507*
Level of Education	-1.307	0.343	0.-202	-3.804*

Source: field survey, 2022. R² = 0.419, Adjusted R² = 0.404

** denotes the level of significance at 0.05*