IJAAR PUBLISHING®

African Journal of Sustainable Agricultural Development | ISSN: 2714-4402
Vol. 5, Number 1 (January-March, 2024) | www.ijaar.org/ajsad

CONSUMPTION PATTERN OF SWEET POTATO AMONG RURAL HOUSEHOLDS IN IMO STATE, NIGERIA

EGWUONWU H. A
Faculty of Agriculture and Veterinary Medicine, Imo State University, Owerri

Abstract

This paper examined the consumption pattern of sweet potato among rural households in Owerri Zone, Imo State, Nigeria. Primary data were used for the study. Structured questionnaire was used to obtain data from 72 rural households. Data were collected on socioeconomic characteristics of rural household heads; perceived benefits of consumption of sweet potato; rate, level and quantity of consumption of sweet potato; constraints in consumer's consumption of sweet potato. Percentages, frequency, mean and multiple regression analysis were used to analyze the data. Results revealed that 58.33% of the respondents were female, mean age was 41.0 years, 36.1% had tertiary education, 50% major occupation were farming, average years of farming experience were 8.4 years, majority (68.1%) did not belong to the cooperative association, majority (80.6%) had no contact with the extension agent, mean household size was 7 persons, average monthly income of farmers was ₦ 49, 572. The major perceived reasons for consumption of sweet potato were identified as that sweet potato is easier to cook ($\bar{x}$ = 3.43), its sweetness, odor, and taste ($\bar{x}$ = 3.14). The daily consumption of sweet potato products was majorly as boiled (70.8%), monthly consumption as flour (31.9%). Major constraints in the consumption of sweet potatoes were also identified, such as: lack of adequate storage (75.0%), perishability (73.6%) or too bulky to handle (66.7%). The regression analysis revealed that age, sex, income, farming experience, educational level, membership of cooperative significantly contributed to level of consumption of sweet potato with the value of R^2(0.737), F-Ratio value (16.097) statistically significant at 1% level of probability. Policies should be aimed at increasing development of infrastructures by providing good access road that will ensure safety of sweet potato to the farmers, reducing the rate of perishability of the crop and thereby reduce the cost of sweet potato.

Keywords – Sweet Potato, Rural Households, Consumption Pattern, Rate of consumption, Constraints.

Egwuonwu H. A. (2024). Consumption Pattern of Sweet Potato among Rural Households in Imo State, Nigeria. *African Journal of Sustainable Agricultural Development*, 5(1), 1-11.

1.0 INTRODUCTION

1.1 Background Information

Sweet potato is one of the root crops in tropical Africa whose roots are edible. Sweet potatoes form a large part of the food of the people in many countries and are considered to be the third most important food crop after corn and cassava in Nigeria (International Institute of Tropical Agriculture, 2016). Sweet potato has been identified as a staple food which has great potential for commercial crop and also significant for food security in many of the Sub-Saharan African countries (Kivuva *et al.,* 2014). Like other agricultural crops, sweet potato has a role to play in the developing economies. Its production provides job opportunity for the farmers, thus raising their income. Sweet potato is consumed without much processing in most parts of the tropics. In Nigeria, because of the high cost of yam production, sweet potato are planted for its sweetness and eaten to substitute for yam in order to cushion the high price effect of yam. Rural household consumes sweet potato in so many ways according to Henok (2015) as a substitute for maize in livestock production, as a wheat flour substitute for cake, bread making and other confectionery products. Rabiu (2015) also noted that sweet potato can be roasted, fried, boiled or canned. The vines and leaves are consumed as a hay and folder by livestock (Olayinka, 2016). Sweet potatoes roots are also rich in βcarotene, frying into chips do not drastically decrease β carotene content (Ukpabi, *et al*, 2011).

However, in spite of all the benefits of sweet potato, people regarded sweet potatoes as a crop with little economic importance, a volunteer or discard crop that children picked around refuse dump sites. Its consumption was surrounded by the erroneous idea that it caused amoebic dysentery (NRCRI, 2009). The study of the Harvest plus (2014) argued that farmers will not adopt these varieties because they are either too watery and or too sweet to meet local taste preferences. A recent study conducted by the international center for research on women (International Center for Research on Women (ICRW), 2015) revealed that in Nigeria households would consume sweet potato if the clones are sufficiently high in starch, low in fiber and are introduced through community-level education programs that emphasized the health of young children and women. Furthermore, some recent studies reveal that the utilization of households on agricultural technologies is governed by socio-economic. Sweet potato is a staple food that has great potential for cash crops and is also significant for food security in many of the Sub-Saharan African countries. It is in this context that this research is conducted based on sweet potato consumption pattern among rural households in Owerri area, Imo state, Nigeria. Therefore, the specific objectives were to describe the socio-economic characteristics of sweet potato consumers in rural areas; determine the perceived benefits of sweet potato consumption; determine the rate of sweet potato consumption among rural households; determine the quantity and level of sweet potato consumption in the study area; identify the constraints of rural households regarding the consumption of sweet potatoes by consumers.

1.2 Hypothesis

The null hypothesis tested was there is no significant relationship between socio-economic characteristics of the rural households and their level of consumption of sweet potato.

2.0 METHODOLOGY

This research was conducted in Owerri Agricultural Zone; Imo State, Nigeria. Owerri Agricultural Zone is one of the three Zones that make up Imo State Agricultural Zones. It is bordered by Abia State on the East, the Anambra and Rivers state on the West, Isu and Isiala Mbano Local Government Area of the State to the North and Rivers and Abia State to the South (Agricultural Development Programme, 2000). Four (4) Local Government Areas (LGAs) who were predominantly sweet potato producers were purposively selected. Then, two (2) communities from each of the LGA were selected given a total of eight (8) communities that were selected and used for the study. Finally, nine (9) rural household heads were selected from each of the communities in the study area to give a total sample size of 72 rural households. The primary data were collected using a set of structured questionnaires, and the obtained data were processed using descriptive statistics (mean, percentage and frequency distribution) and inferential statistics. A four-point Likert scale was also used, accepting an average value of 2.50. From the addition of the weighted values and dividing by the total number of scales, the mean scores were obtained with discriminating index of 2.5 (e.g 4+3+2+1 = 10/4= 2.5). Also, inferential statistics such as regression analysis were used for the null hypothesis. The implicit model is given as follows:

$Y = F(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, e_1)$
Where Y= Level of consumption (Total rated scores)
X_1 = Age (years)
X_2 = Sex (male = 1, female = 0)
X_3 = Marital status (married = 1, single = 0)
X_4 = Educational level (years)
X_5 = Household size (number of persons)
X_6 = Farm size
X_7 = Monthly income (naira)
X_8 = Farming Experience (years)
X_9 = Access to extension agents (access = 1, no access = 0)
e_1 = error term

3.0 RESULT AND DISCUSSION

The obtained results are presented in 6 tables: socio-economic characteristics of rural households; perceived benefits of consumption of sweet potato; rate, level and quantity of consumption of sweet potato; constraints in consumer's consumption of sweet potato and estimated influence of rural households' socio - economic characteristic on the level of consumption of sweet potatoes.

3.1 Socio-economic Characteristics of Rural Households

Table1 shows that majority (58.33%) of the households were female from the study area. This shows that the women were highly involved in farming. This is in line with Egwuonwu *et al.,* (2017) that achieving nutrition and food security rural are some of the key role women play in supporting their households in and overall well being of their households. Majority (52.8%) of the respondents were married. This shows a high sense of responsibility among the respondent.

The average age of sweet potato farmers was 41.0 years, 36.1% of the respondent had Tertiary educational level in the study area. The rural household head were literate which implies that the majority could be aware of the nutritional benefit of sweet potato, understand and consume the sweet potato. Sheikh (2006) observed that access to education by the farmers has been found out to have positive effect and role in the consumption of sweet potato. The result also reveal that 50% of the respondents major occupation were farmers, this shows that the farmers consume much of sweet potato in the study area. The average years of farming experience was 8.4 years while majority (68.1%) did not belong to the cooperative association. Also, majority (80.6%) had no contact with the extension agent. This implies that majority of the respondents may not be well exposed to the various nutrition of sweet potato. The average household size was 7 persons. This means that the respondents had relatively large-sized households and was advantageous to consumption since it will enable the respondents to consume more of sweet potato because of the large size of the household. The average monthly income of farmers was ₦ 49, 572. 00. The rural households' income was low, this could affect the consumption pattern of sweet potato.

Table 1: Socio-economic Characteristics of Rural Households

Socio-economic characteristics	Frequency/mode	Percentage	Mean
Sex	Female	58.33	
Marital Status	Married	52.8	
Age (Years)	40-49	27.8	
Marital Status	Married	83.50	
Age (Years)	41-50years	40.00	**41.00years**
Education	Tertiary	36.1	
Major Occupation	Farming	50.0	
Farming experience (Years)	5 -8years	34.7	**8.4 years**
Organization Membership	Non-Member	68.1	
Extension Contact	No	80.6	
Household size (Persons)	5-8 persons	55.5	**7 persons**
Income (Naira)	₦ 15,000-₦ 50,000	48.6	**₦ 49, 572. 00**

N = 72; Source: Field Survey, 2022

3.2 The perceived reasons for consumption of sweet potato

The result in Table 2 shows various reasons for rural households consumption of sweet potato as majority of the respondents agreed that sweet potato is easier to cook ($\bar{x}$ = 3.43), sweet potato was consumed for its sweetness, odor, and taste ($\bar{x}$ = 3.14), as rich source of vitamin ($\bar{x}$ = 2.90), as a wheat flour substitute in making bread cake and other confectionery products ($\bar{x}$ = 2.9), satisfy hunger, promote health, sustain energy, control diabetes, better vision for children ($\bar{x}$ = 2.85), potato consumed for their nutrition and high in fiber content ($\bar{x}$ = 2.9), improves healthy cognitive development for children ($\bar{x}$ = 2.56), consumed for their nutrition and high in fiber content ($\bar{x}$ = 2.49), consumed for flavor and good texture ($\bar{x}$ = 2.48), provides a reasonable amount of energy and protein ($\bar{x}$ = 2.24), reduces the risk of heart disease, obesity, and cancer ($\bar{x}$ = 2.15), as a substitute for maize in livestock production ($\bar{x}$ = 2.08). Consumption of sweet potato for weight loss ($\bar{x}$ =1.99), sweet potato is rapidly digested ($\bar{x}$ = 1.64). This implies that rural households do consume sweet potato for several reasons, this result is in line with the studies of

Rabiu (2015); Henok (2015) and Olayinka (2016) that rural household consumes sweet potato as a substitute for maize, wheat, and also sweet potato were boiled, fried or roasted and canned.

Table 2 Perceived reasons for consumption of sweet potato

s/n	Perceived reasons for consumption	Mean	St. Dev
1	Sweet Potato is a rich source of vitamin	2.90	1.06
2	Sweet Potato is easier to cook	3.43	0.75
3	Sweet Potato reduces the risk of heart disease, obesity, and cancer.	2.15	0.85
4	Sweet Potato provides a reasonable amount of energy and protein	2.24	0.88
5	Consumption of sweet potato for weight loss	1.99	0.81
6	Consumption for its flavour and good texture	2.48	0.86
7	General well being and improved health cognitive development for children	2.56	0.92
8	Consumption of sweet potato for its sweetness, odor and taste	3.14	0.88
9	Sweet potatoes satisfy hunger, promotes health, sustains energy, controls diabetes, better vision for children.	2 .85	1.04
10	Sweet potatoes are consumed for their nutrition and high in fiber content	2.49	0.90
11	Wheat flour substitute in making bread cake and other confectionery products.	2.90	0.76
12	substitute for maize in livestock production	2.08	1.11

Source: Field Survey, 2022

3.3 Rate of consumption of sweet potato

The Table 3 shows that the rural households rate of daily consumption of sweet potato products were majorly as chips (37.5%), soup (45.8%), baked (45.8%) and boiled (70.8). Monthly consumption of sweet potato by the rural household was identified as flour (31.9%), cake (29.2%), snacks (20.8%). Also, majority of the respondents never consume some sweet potato product such as starch (65.3%), noodles (72.2%), flour (57.0%), chinchin (63.9%), doughnut (68.1%), cake (62.5%), animal feed (59.7%) and alcohol (87.5%). This indicates that not all the sweet potatoes products were consumed by the households, this may be due to long time of processing such as starch, noodles, flour, doughnuts, alcohol unlike consumption of sweet potato as boiled and fried.

Table 3 Rate of consumption of sweet potato

Product consumed	Daily	Weekly	Monthly	Never
Fried Chips	27(37.5)	16 (22.2)	10 (13.9)	19 26.4)
Starch	4(5.6)	7 (9.7)	14(19.4)	47(65.3)
Noodles	3(4.2)	11(15.3)	6 (8.3)	52(72.2)
Flour	1(1.4)	7 (9.7)	23 (31.9)	41(57.0)
Soup	33(45.8)	6 (8.3)	4 (5.6)	29(40.3)
Doughnut	3(4.2)	8 (11.1)	12(16.6)	49(68.1)
Chinchin	4(5.5)	10(13.9)	12(16.7)	46(63.9)
Cake	1(1.4)	5(6.9)	21(29.2)	45(62.5)
Baked	33(45.8)	10(13.9)	13(18.1)	16(22.2)
Boiled	51(70.8)	17(23.6)	4(5.6)	0
Animal feed	9(12.5)	10(13.9)	10(13.9)	43(59.7)
Alcohol	0	2(2.8)	7(9.7)	63(87.5)

N= 72; Source: Field Survey, 2022

3.4 Quantity and level of consumption of sweet potato

The Table 4 shows that 22.2% of the rural households indicated high consumption of sweet potato in the study area, 29.2% of the respondents moderately consume sweet potato while most (48.6) of the respondents admitted that the amount of sweet potato consumed in the study area was low. This still shows that despite the benefits of sweet potato, the consumption is still low compared to the rate at which people consume yam and cassava in a day. The low consumption might also probably be that the respondents were not too aware of the nutritional benefits of sweet potato. Also, the result shows that 37.5% of the rural households consumed sweet potato 3 times in the previous 7 days, 16.7% agreed that they consume sweet potato 4 times in ~~last~~ previous 7 days and 7(9.7%) of the respondents confirmed that they consume sweet potato 5 times in the previous 7 days while 11.1% of the respondents admittted that they consume sweet potato 6 times in the previous 7 days and 25% said that they consume sweet potatoes once in the 7 days. Table 4 shows that 33.3% of the respondents regularly consume sweet potato while 66.7% do not consume sweet potato regularly. This result shows that most of the rural household had low consumption and were not regularly consuming sweet potato.

Table 4 Consumption of sweet potato

Variables	Frequency	Percentage
Consumption of sweet potato		
High	16	22.2
Moderate	21	29.2
Low	35	48.6
Number of times sweet potato is consume in the previous 7 days		
3 times	27	37.5
4 times	12	16.7
5 times	7	9.7
6 times	8	11.1
Once	18	25.0
Daily consumption of sweet potato		
Once	54	75.0
Twice	18	25.0
Regular consumption of sweet potato		
Yes	24	33.3
No	48	66.7

N = 72; Source: Field Survey, 2022

3.5 Rural household Constraints in Consuming Sweet Potato

Rural households had some constraints in consuming sweet potato as revealed in Table 5 as majority identified constraints as Lack of proper storage (75.0%), Perishability (73.6%), Too bulky to handle (66.7%), High cost of sweet potato (55.6%) and Too watery of sweet potato (54.2%). This goes in line with the study revealed by Chivinge *et al.*, (2000) that farmers find it difficult to transport produce from farm due to its bulkiness to market which makes it unavailable for individuals to buy in the marketplace and eventually increases the price of the sweet potato.

Table 5 Challenges in the consumption of sweet potato

S/N	Challenges	*Frequency	Percentage
1	Lack of knowledge on how to prepare and cook sweet potato	10	13.9
2	Insufficient fund in buying sweet potato	33	45.8
3	Not having exposure to sweet potato during childhood	35	48.6
4	Inadequate knowledge on the benefits of sweet potato	39	54.2
5	The taste is not too pleasant to me	29	40.3
6	Sweet Potato is considered as an inferior product	31	43.1
7	Irregular supplies from the rural producing area	19	26.4
8	Obstacle about the perishability	53	73.6
9	Too bulky to handle	48	66.7
10	Lack of proper storage	54	75.0
11	Too watery of sweet potato	39	54.2
12	Unfamiliarity of sweet potato	8	11.1
13	High cost of sweet potato	40	55.6

*** Multiple responses recorded; N = 72; Source: Field Survey Data, 2022**

3.6 Estimated Influence of Rural Households Socio-economic Characteristics on Level of Consumption of Sweet Potatoes

The regression analysis on Table 6 shows relationship between socio-economic characteristics and the level of consumption of sweet potatoes among the rural households. Based on the statistical significance of the coefficients, goodness of fit and the economic theory that supports socio-economic model, the double-log regression function was chosen as the lead equation with the value of R^2(0.737), F-Ratio value (16.097) and was statistically significant at 1% level of probability. This implies that the rural households' socio-economic characteristic had a significant influence on the level of consumption of sweet potatoes and that the regression model has a very strong explanatory power. This is an indication that 73.70% of the variation in level of consumption of sweet potatoes was clearly explained by the explanatory variables. The analysis 't' values of regression coefficients indicated that age, sex, income, farming experience, educational level, membership of cooperative were significant at 1% level of probability implying that the regression model has very strong explanatory power, hence the study concludes that socio-economic characteristics of rural households had a significant contribution to level of consumption of sweet potatoes.

Table 6 Estimated Influence of Rural Households Socio-economic Characteristic on Level of Consumption of Sweet Potatoes

Explanatory variables	Linear	Semi-log	Double-log	Exponential
Constant	4.780 5.675)**	3.421(8.840)	8.871(12.838)	1716.814 (10.585)
Marital Status (X_1)	-0.594 (-0.872)	-0.105 (-0.743)	0.020 (0.405)	-197.573 (-0.509)
Age (X_2)	0.006 (0.179)	0.192 (0.054)	-0.212 (-1.678)	4.642E-25 (1.457)
Sex (X_3)	-0.331 (-1.885)	-0.053 (-0.679)	-0.033 (-3.134)**	-34.039 (-0.486)
Income (X_4)	3.647E-7 (2.055)*	2.521E-7 (2.182)**	2.000E-7(2.150)**	-0.001 (-0.134)
Farming Experience (X_5)	0.015 (2.224)*	-0.738 (0.136)	0.150 (2.071)**	1.357E-10 (2.579)**
Extension Visit (X_6)	0.025 (2.228)*	0.260 (0.340)	0.160 (1.676)	-7.548E-24 (-1.672)*
Household Size (X_7)	0.063 (0.442)	0.018 (2.599)	0.016 (0.138)	0.030 (-0.043)
Educational Level (X_8)	-0.015 (-0.317)	0.004 (2.462)	0.004 (2.546)**	1.997E-7(2.726)**
Membership of Cooperative X_9)	0.255 (1.531)	0.045 (2.313)	0.233 (2.551)**	0.745 (2.803)*
R^2	56.10	59.40	**73.70**	68.30
F-Ratio	10.775	12.715	**16.097**	14.672

Source: Computer Printout of SPSS (2022); values in Parenthesis are t-values *Statistically Significant at 5%; ** Statistically Significant at 1%

4.0 CONCLUSION AND RECOMMENDATION

Consumption of sweet potato is very important in rural areas considering its numerous benefits to mankind. The conclusions of this study show that the sweet potato is easier to cook, has a specific sweetness, smell and taste, and is also consumed boiled (70.8%) or in the form of flour (31.9%). Major constraints in the consumption of sweet potatoes were also identified, such as: lack of adequate storage (75.0%), perishability (73.6%) or too bulky to handle (66.7%). However, the study revealed that the consumption is low in the study area despite its importance. To reduce hunger and improve food security among rural households, consumption of sweet potato is important. The study therefore recommends that: Government should increase development of infrastructures by providing good access road that will ensure safety of sweet potato to the farmers, reducing the rate of perishability of the crop and thereby reduce the cost of sweet potato. This will make household consume more. Also, the root and crop researchers should continue improving the quality of sweet potato to eliminate some complains of consumers that sweet potato is too watery. Extension agents should increase their campaign on benefits of consumption of sweet potato among rural people.

REFERENCES

Agricultural Development Programme (2000). Annual Report 2000. Imo Agricultural Development Programme, New York.

Chivinge O. A., Musambasi, D and Mariga, I.K (2000). Grain legumes and Green manures for soil fertility in southern Africa journal of applied science in south Africa.

Egwuonwu H. A (2017). Analysis of the perceived effects of selected Development intervention on Rural women in Imo state, Nigeria. Research journal of society.

Harvest plus (2014). The Effect of farmers consumption of sweet potato. International center for research on women (ICRW/OMNI Research Program). Research Report Series. No Breeding Crops for Better Nutrition". http//www.harvestplus.org/sweet potato.html

Henok. K (2015). The Role of sweet potato(ipomea batatas for combating vitamin in Imo state. A Review; International Journal of food science and nutrition engineering 2015.

International Center for Research on Women (ICRW) (2015). Potential of sweet potato.

International Institute of Tropical Agriculture (IITA) (2016). Overview of Root and Tuber Crops Potential in Nigeria; http://www.iita.org/overview/cassava; assessed on line on 12-10-2016

Kivuva B. M., Musembi F. J., Githiri S. G., Yencho C. G., Sibiya J. (2014). Assessment of production constraints and farmers' preferences for sweet potato genotypes. *Journal of Plant Breeding and Genetics* 2(1): 15 – 29.

Kakuhenzire, R., Kinyae, P. M., Nyongesa, M. and Struik, P. C. (2009). Improving potato Muinat, M S, and Damola A (2017). Analysis of Potato Consumption among Households in Odeda Local Government Area, Ogun State, Nigeria; *Agricultura Tropica Et Subtropica*, 50/2, 89–99, 2017 production in Kenya, Uganda and Ethiopia: a system diagnosis. *Potato Research*, 52, 173-205

National Root Crops Research Institute (2009). National Root Crops Research Institute, Umudike- Root Crops Division.http://74.6.239.67/search/cache?ei=8&p=www.nrcri.org%2fpages%2fspotato.htm&i...

Olayinka, I (2016) Performance Analysis of Small Scale Sweet Potato Farms in Oyo state Nigeria; DOI: 10.1515/ats-2016-0005 Agricultural Tropical Ex subtropical.

Rabiu, (2015). Profitability Analysis and Resource use Efficiency in Sweet Potato production in Gaya Zone, Kano State Nigeria. A Thesis submitted to the school of post graduate studies, Ahmadu Bello university Zaria in Partial Fulfillment of the Requirements for the Awards of Science Degree In Agricultural Economics.

Sheikh, A.D., Ather, A.M., Arshed, B. and Kashi, M (2006). Adoption of rice technology package by farmers of irrigated PUNLAB.

Ukpabi, J. U., Emmanuel, O and Nkeiru, J.O (2011). Culinary and sensory characteristics of Hausa potato (Solenostemon rotunditolus) tubers in Nigeria Journal of stored product of post harvest Research.