

Seasonality And Frequency Of Consumption Of Yam Food Forms Among Rural Households In Umuahia North Local Government Of Abia State, Nigeria

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Abstract

The study examined the seasonality and frequency of consumption of yam food forms among rural households in Umuahia North Local Government Area of Abia State, Nigeria. Specifically, the study described the socioeconomic characteristics of heads of rural households in the study area; ascertained the food forms of yam consumed by rural households; assessed the frequency of consumption of yam food forms among rural households. Multi-stage random sampling procedure was adopted to select 120 respondents for the study. Data were collected through the use of structured questionnaire and analyzed with descriptive statistics such as frequencies, mean scores, standard deviations as well as the regression model. The results showed that half of the respondents were males (50.80%) with a mean household's size of 6 persons/household. Also, majority of the respondents (95%) were involved in farming with a mean farming experience of 13 years. The results of the study showed that majority of the respondents at any time and in all seasons consumed yam in forms of boiled (65.00%) roasted (53.33%) or fried (71.67%) but they ate yam in pounded form (44.17%) during ceremonies/occasions. Results of the frequency of yam consumption showed that 50.83% of the respondents consumed boiled yam 2-3 times/week, while 57.50% of the respondents ate roasted yam once in a while, 3.33%, every day. It was therefore recommended that the rural dwellers should expand their yam farming areas and improve yam productivity through adoption of modern production techniques so as encourage increase yam consumption in various food forms among rural households in the study area.

Keywords: Seasonality, Ceremony, Consumption frequency, Yam food forms, Rural households

Introduction

The Yam crop play great nutritional and economic roles to both the rural and urban dwellers in Nigeria as it is known to provide some 200 calories of energy per capita daily in Nigerian and West African diet. It is a source of industrial starch and a preferred staple food appreciated for its taste and cultural role. Yam production in Nigeria has witnessed a downward trend owing to scenarios that may not be unconnected with poor savings and investment behaviour among farmers (Bamire and Amujoyegbe, 2005).

Ogbonna, M.C., Onyenweaku, C.E. and Nwaru, J.C. (2012). pointed out that the low productivity, low income, low saving circle of farmers in Nigeria, as in most countries in the Sub Saharan African region, imply that very little is available to invest in increasing the capital stock of farm enterprises. According to Ogheneruemu, Olubunmi, and Adetutu (2014), growth attained within the agricultural sector depends largely on what the farmers do with the seasonal additional incomes generated from their farm activities. Similarly, Akerele and Ambali (2012) reported that the growth rate in the farming economy largely depends on the stock of capital built in a

farm organization and the re-investment of such stocks in form of savings for further improvement of the farm organization.

In West Africa, yam has multiple values including the standard food and cash income generation. Yam consumption is high in Nigeria where it is the fourth most important calorie source after sorghum, millet and cassava. Yam is a major source of cash income for millions of producing households because it has high market demand and it is easily exchanged for cash in rural and urban markets. Nigeria is the largest yam producer in the world, contributing to two-thirds of global yam production each year. Yam production is declining in some traditional producing areas due to declining soil fertility, increasing pest pressures and the high cost of labor. Smallholders therefore need access to innovations to reduce labor and improve productivity. Yams are grown by planting pieces of tuber, or small whole tubers ('seed yams') saved from the previous season. Small-scale farmers, the majority of producers, often intercrop yams with cereals and vegetables (IITA, 2017). According to Ogbonna *et al.* (2012), decline in yam output results to widening gap between yam supply and demand. Similarly, Kushwaha and

Polycap (2001) further reported that as a result of this downward trend in yam output in the country, the commodity has become more expensive particularly in the urban areas.

Analyses of yam price competitiveness provide convincing evidence that high yam production cost is a drag on yam consumption through high product prices. The same set of analyses demonstrates that certain physiological properties of the yam tuber are a clog in the wheel of yam consumption (Nweke, Aidoo, and Okoye 2013). Yam tubers consist of about 21% dietary fiber and are rich in carbohydrates, vitamin C and essential minerals. Worldwide annual consumption of yams is 18 million tons, with 15 million in West Africa. Annual consumption in West Africa is 61 kilograms per capita. Yams are boiled, roasted, baked or fried. In Africa they are also mashed into a sticky paste or dough after boiling (IITA, 2017). Approximately 45 percent of harvested yam seed is saved for the next planting season. This starkly contrasts with other staple crops, for which approximately 20 percent of harvested yields are saved.

The consumption patterns and taste in food are often shaped by the family life cycle and the number, age, and gender of people in the household besides their occupation. Moreover, despite the fact that economists had in time past developed series of models explaining consumer choice in terms of changing utilities, or demand preference according to the variations in price, income and quantity, recent empirical evidence suggests that consumer decision making processes involve some unseen relative cognitive values that include taste, species, durability, weight etc. In Nigeria, in cassava producing areas where yam is only a secondary crop, yam contributed 18% of household food crops cash income, second to cassava. Cassava farmers often produce yam for sale for cash to pay high wages for seasonal hired labour in cassava production. Analyses of yam price competitiveness provide convincing evidence Range of food staples that compete with yam, range of foods prepared from yam and frequencies of yam consumption all vary significantly among communities (Nweke, *et.al* 2013).

In view of the foregoing, this paper examined the seasonality and frequency of consumption of yam food forms among rural farm households in Enugu State, Nigeria. The specific objectives are to: describe the socioeconomic characteristics of the heads of rural households in the study area; ascertain seasonality of consumption of yam food

forms among rural households as well as assess the frequency of consumption of yam food forms among rural households.

Methodology

The study was conducted in Umuahia North Local Government Area (LGA) of Abia State, Nigeria. The local government is a commercial as well as an administrative council area with its headquarters in Umuahia city. It also houses villages of different households of farmers. The major food crops grown by the people include cassava, yam, cocoa yam, maize, local beans and various types of vegetables while cash crops found in the state are cocoa, oil palm, kola nut, rubber, plantain, and banana. The people raise fish and various kinds of livestock.

A multi stage sampling procedure was adopted to select respondents for the study. In the first stage, 2 villages were randomly selected from each of the 5 communities in the LGA, this was followed by a random selection of twelve respondents from each of the selected villages. In all a total of one hundred and twenty households were selected for interview.

With use of structured questionnaire data were collected from the respondents and analyzed through use of descriptive statistics such as frequency count, mean etc. Furthermore, relationship between farmer socioeconomic characteristics were tested with the use of ordinary least square regression model.

The model is implicitly expressed thus:

$$Y=f(X_1, X_2, X_3, X_4, X_5, X_6)$$

Where: Y = consumption frequency (mean scores for consumption of yam food forms)

X_1 = age of head of household (years)

X_2 = sex of head of household (male=1; female=0)

X_3 = household size (number)

X_4 = educational status of head of household (in years)

X_5 = monthly income of head of household (Naira)

X_6 = farm size (ha)

e_i = error term

Results and Discussion

Socio-Economic Characteristics of Respondents

The results as shown in Table 1 indicate that 26% of the respondents were within the age range of 30-39 years while 22% of them were within the age range of 40-49 years. From this result, it can be inferred that majority of the respondent are in

their youthful and active stage of life where they can harness and utilize their productive energies in farming yam.

Also, 50.80% of the respondents were males while 49.20% were the females. This is contrary to the work of Onyemauwa, (2010) who says that as far as household consumption management in Southeastern Nigeria is concern, women are in charge. The household size shows that 45% of respondents had 4-6 members, while 21% and 19.2% of the respondents have 9 and 10 household members respectively. This implies that the respondents had relatively large household size, and this may be attributed to the fact that they are rural dwellers who are involved in farming, hence need more persons to support their farming activities since it is labour intensive. This result is similar to Onyemauwa (2010) which indicated in a similar study that farm households had eight (8) persons per household.

The results further revealed that 61.70% of respondents were part time farmers, while 33.30% were full time farmers while (5.0%) of the respondents had no form of occupation. This implies that 95% of the respondents are practicing farmers. The results also show that majority (54.20%) had primary education, (36.70%) had secondary education while (9.20%) had tertiary education,

The results also showed that 45.8% of the respondents had farming experience of 1-9 years, 30.8% had farming experience of 10-19 years, while only 4.1% had 40-49 years of farming experience. On the average, the mean farming experience of the respondents is 13 years.

The results also indicated that 40.0% of the respondents earned annual income of between ₦1, 000 – 50,000 while 30.90% of them earned ₦51,000 –100, 000.

Table 4.1 Distribution of respondent according to their socio-economic characteristics

Socio-economic variables	Frequency	Percentage
Age		
20-28	21	17.60
30-39	31	26.00
40-49	28	22.40
50-59	24	19.90
60-69	16	13.30
Sex		
Male	61	50.80
Female	59	49.20
Annual Income (Yam)		
1,000-50,000	48	40.00
51,000-1000,000	37	30.90
101,000-150,000	20	16.60
151,000-200,000	5	4.10
201,000 and above	10	8.30
Mean	91,325,000	
Household size		
1-3	17	14.10
4-6	54	45.00
7-9	26	21.70
10 and above	23	19.20
Mean	6.47	
Occupation		
Full time farmer	40	33.3
Part time farmer	74	61.7
No occupation	6	5.0
Education		
Primary	65	54.2
Secondary	44	36.7
Tertiary	11	9.2
Farming Experience	55	45.8
1-9		
10-19	37	30.8
20-29	15	12.5
30-39	8	6.7
40-49	5	4.1
Mean	12.93	

Source: Field Survey, 2017.

Seasonality of Consumption of Yam Food Forms

Table 2 presents the seasonality of yam food form consumption in the study area. The results of the study showed that majority (65.00%) of the respondents eat boiled yam anytime in all seasons. However, 13.33%, 12.5%, and 7.5% of the respondents consumed boiled yam during rainy season, harvest season and dry season, respectively. This implies that there is really no specific season where the respondents have particular flare for

eating boiled yam. For roasted yam, the result shows that 53.33% of the respondents eat roasted yam anytime while 17.5%, and 11.67%, of the respondents prefers eating roasted yam during dry season and harvest season respectively. This implies that in the study area, roasted yam is a yam food form eaten at any time one wants to. In fact, this attests to the fact that in Abia State, yam is being roasted for sale, all year round.

The pounded yam food form was consumed by majority (44.17%) of the respondents in the study during ceremonies/occasions while the least number of respondents (4.17%) consumes pounded yam during rainy season. This implies that pounded yam is food for the rich and as a result only eaten during festivities. This is in line with the findings of Nweke, Aidoo and Okoye, (2013) who indicated that pounded yam is an ultimate in status food and in Nigeria, the frequency of eating pounded yam increases from low through medium to upper income group.

Moreover, the results showed that majority (71.67%) of the respondents consume fried yam at anytime while 4.17% and 2.5% of the respondents consume fried yam during planting season, and at ceremonies respectively. This implies that fried yam preference does not attach itself to a particular period or season of the year, rather, it is being consumed whenever anybody feels like. The result also shows that majority (49.17%) of the respondents in the study area attest to the fact that they consume yam flour during ceremonies. This may be because yam flour is not well eaten or consumed in the east, like the way it is in the west.

Table 2: Distribution of respondents according to the consumption of yam food form

Yam food forms	Harvest season	Rainy Season	Dry Season	Planting Season	Ceremony	Anytime
Boiled	15 (12.5)	16 (13.33)	9 (7.5)	2 (1.67)	0 (0)	78 (65.00)
Roasted	14 (11.67)	9 (7.5)	21 (17.5)	12 (10.00)	0 (0)	64 (53.33)
Pounded	7 (5.83)	5 (4.17)	13 (10.83)	11 (9.17)	53 (44.17)	31 (25.83)
Fried	5 (4.17)	15 (12.50)	6 (5.00)	5 (4.17)	3 (2.5)	86 (71.67)
Flour	8 (6.67)	2 (1.67)	6 (5.00)	11 (9.17)	59 (49.17)	34 (28.33)

Source: Field Survey, 2017

Frequency of Consumption of Yam Food Forms among Rural Households

The results in Table 3 showed that majority (50.83%) of the respondents consumed boiled yam 2-3 times per week, while, 3.33% consume boiled yam every day. The result further showed that majority of the respondents once in a while eat yam in roasted form (57.50%) as well in pounded form (66.67%). This indicates that yam consumption in roasted and pounded forms is consumed occasionally and this could be as a variety meal among households in the study area. Furthermore, results show that 42.50% of the respondents consumed fried yam 2-3 times/week, while 15.83% consume it every day.

The result also shows that 77.50% of the respondent uses yam flour once in a while. This signifies that yam flour is not really indigenous to the rural household in Umuahia North LGA. The implication of this is that the respondents were not really consuming yam food forms frequently and this may be as a result of the fact that they do not enough land to plant yam and cannot buy yam to consume, either because of the expensive price of yam in the market in recent times. The results corroborates Nweke, Aidoo and Okoye, (2013) which reported that in Nigeria, the frequency of consumption of pounded yam increases within the higher income group.

Table 3: Distribution of respondents according to frequency of consumption of yam food forms

Yam food form	Every day	4-5times /week	2-3times/ week	Once in a while
Boiled yam	4(3.33)	14(11.67)	61(50.83)	41(34.17)
Roasted yam	4(3.33)	21(17.50)	26(21.67)	67(57.5)
Pounded yam	4(3.33)	14(11.67)	22(18.33)	80(66.67)
Fried yam	19(3.85)	13(10.83)	51(42.50)	37(30.83)
Flour yam	3(2.50)	7(5.83)	17(14.17)	93(77.50)

Source: Field Survey, 2017. Figures in parenthesis are percentages

Relationship between Socioeconomic Characteristics and Frequency of Yam Consumption

Table 4 is the regression result of the relationship between farmers' socio-economic characteristics and frequency of yam consumption among rural households in the study area.

The results showed that the overall goodness of fit of the equation as indicated by the coefficient of multiple determinations for the frequency of yam consumption were ($R^2 = 0.240, 0.318, 0.223, 0.117$ and 0.038) for yam consumed 6-7 days/week, 4-5 days/week, 2-3 days/week, once/week and yam rarely consumed respectively. The F-statistics values of yam consumed 6-7 days/week (3.008^{***}), 4-5 days/week (4.424^{***}) and 2-3 days/week (2.725^{**}) were significant at 1% confirming the significance of the model. The R^2 value indicated above were indeed the coefficients of regression relationships between the explanatory variables and the listed yam consumption frequencies.

The result shows that six out of the eight socioeconomic variables were significantly related to the frequency of yam consumption among rural households in the area. These included respondents' sex, educational status, involvement in yam farming, household annual income, yam monthly expenditure. Specifically, the coefficients of

educational status (2.114 and 2.158) were positively signed and significant at the least of 5% alpha levels respectively. This implies that a unit increase in educational status of rural household members shall result in corresponding increase in frequency of yam consumption. Similarly, household annual income (1.922) and yam monthly expenditure (3.456) were positively signed and significant at the least of 5% alpha levels respectively. This implies that a unit increase in household annual income, and monthly expenditure on yam would increase frequency of yam consumption respectively and vice versa, provided that every other factor remains constant. This means certain socio-economic characteristics have significant positive effects on the variables on the frequency of yam consumption.

On the other hand, sex was negatively signed and significant at 1% alpha level. This implies that females have high frequency to yam consumption than the males as they consume yam 6-7 days/week. This is contrary to *a priori* expectation even though it may be as a result of the fact that women like fries and so, frequently consumed fried yams. Age and household size were found to be insignificant implying no impact of these inputs on the frequency of yam consumption

Table 4 Regression analysis of the relationship between socioeconomic characteristics and frequency of yam consumption in the households

Socio-economic characteristics	Yam consumed 6-7 days	Yam consumed 4-5 days	Yam consumed 2-3 days	Yam consumed once/week	Yam rarely consumed
Constant	-0.033 (-0.201)	0.003 (0.025)	-0.356 (-1.182)	-0.289 (-1.174)	0.495 (1.478)
Age	.001 (0.325)	0.000 (0.084)	0.003 (0.712)	0.002 (0.780)	-0.005 (-1.223)
Sex	-0.118 (-2.662) ^{***}	0.086 (2.341) ^{***}	0.227 (2.808) ^{***}	0.134 (2.029) ^{**}	0.024 (0.269)
Educational status	-0.032 (-0.892)	0.063 (2.114) ^{***}	0.035 (0.535)	0.116 (2.158) ^{**}	-0.075 (-1.021)
Household size	-0.012 (-1.339)	0.005 (0.636)	0.013 (0.884)	0.003 (0.201)	0.001 (0.069)
Involvement in yam farming	0.078 (1.802) [*]	-0.104 (-2.619) ^{***}	0.058 (0.659)	-0.009 (-0.120)	-0.005 (-0.005)
Household Annual income	2.476 (0.802)	-4.202 (-1.648)	1.0816 (1.922) ^{**}	-8.020 (0.175)	2.402 (0.038)
Yam monthly expenditure	5.205 (3.456) ^{***}	4.049 (3.253) ^{***}	2.409 (0.878)	-8.371 (-0.374)	1.615 (0.529)
F- Ratio	3.008 ^{***}	4.424 ^{***}	2.725 ^{**}	1.259	1.372
R	0.490	0.564	0.472	0.342	0.194
R ²	.240	0.318	0.223	.117	0.038

Source: Field Survey, 2017. Figures in parenthesis are t-values; ^{***}, ^{**}, ^{*} indicate Significance at 1%; 5% and 10%.

Conclusion

Results of the study show that the mean age of the respondents was 42 years, mean households size was 6 persons per household, mean years of farming experience was 12 years, mean farm size for yam was 1.44 hectare. It was equally revealed that majority of the respondents had one form of education or the other. The results of the study showed that there is no particular season specially marked for consumption of yam food forms as majority of the respondents at any time and in all seasons consumed yam in forms of boiled, roasted, or fried. They however, ate yam in pounded form during ceremonies/occasions. Results of the frequency of yam consumption showed that 50.83% of the respondents consumed boiled yam 2-3 times/week, while 57.50% of the respondents ate roasted yam once in a while, 3.33%, every day. Furthermore, the result shows that sex,

educational status, involvement in yam farming, household annual income, and yam monthly expenditure significantly influenced the frequency of consumption of yam food forms in the study area.

It was therefore recommended that the rural dwellers should expand their yam farming areas and improve yam productivity through adoption of modern production techniques so as encourage increase yam consumption in various food forms among rural households in order to address the rising rate of hunger and food insecurity in the study area. Also, Research institutes such as National Root Crop Research Institute (NRCRI) should train rural households/farmers on how to add value to their farm produce in order to improve the shelf life of yam and makes them more appealing to the farming families for consumption.

www.nigerianstat.gov.ng/pages/download/194.
[Accessed: 17. January 2014].

References

Akerele, E.O. and Ambali, O.I. (2012). Consumption and saving pattern among rural farming households in Abeokuta local government area of Ogun state. *World Rural Observations* 2014;6(4)

<http://www.sciencepub.net/rural>. Journal of Agriculture and Veterinary Services

Bamire, A. S. and Amujoyegbe, B. J. (2005). Economic analysis of land improvement techniques in small holder yam based production system in the agro-ecological zones of south-western Nigeria.

Polycarp IM and Kushwaha S, (2001), Economics of small scale yam production in Qua'an Pau LGA of Plateau. In: Abubakar M.M., Adegbola, T.A. and Butswat, I.S.R. (Eds), *The Role of Agriculture in Poverty Alleviation*. Proc. 34th Ann. Conf. of Agric. Soc. of Nigeria, held at Abubakar Tafawa Balewa University (ATBU), Bauchi, Oct., 15 – 19, 2001, pp 69 – 74.

National Bureau of Statistics (NBS) (2012). integrated surveys on agriculture: general household survey panel 2010/11. Available at:

Nweke, F., Aidoo, R., and Okoye, B. (2013). *Yam Consumption Patterns in West Africa*. Final Report for BMGF, July, 2013.

Ogbonna, M.C., Onyenweaku, C.E. and Nwaru, J.C. (2012). Determinants of Rural Poverty in Africa: The Case of Yam Farm Households in South Eastern Nigeria. *Int'l Journal of Agric. and Rural Dev.* 15(2): 1129- 1137.

Onyemauwa, C.S. (2010). Analysis of Households Consumption of Cassava Products in Ohaozara, Ebonyi State, Southeast Nigeria. *Researcher Journal Vol.2* (6).

Ogheneruemu O. Olubunmi O. and Adetutu E. (2014). Savings Determinants among Rural Households in Southwest Nigeria. *World Rural Observations*;6(4).

<http://www.sciencepub.net/rural>. University of Ibadan, Nigeria.

Okoye B.C, Felix, Nweke, Aidoo, Robert (2013): *Yam Consumption Patterns in West Africa*. Technical Report of Yam Improvement for Income and Food Security in West Africa Submitted to IITA, 2013.