

DETERMINANTS OF SWEET POTATO PRODUCTION LEVEL AMONG FARMING HOUSEHOLDS IN IMO STATE, NIGERIA.

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ABSTRACT

This study ascertained the determinants of sweet potato production level (SPPL) among farming households (FH) in Imo State, Nigeria. Multi-stage sampling procedure was used to select 135 respondents. Data were collected through structured interview schedule and analysed with descriptive and inferential statistics. The study reveals that the average sweet potato (SP) farm size and farming experience were 2.42 ha and 6 years, respectively. Majority of the respondents were male (55.6%) and married (50.4%). The mean age and household size of the respondents were 59 years and 5 persons, respectively. Most respondents had formal education (80.7%) and were not cultivating SP as their major livelihood activity (74.1%). Sweet potato information was accessed through neighbour (1.45). Unavailability of land (1.56) was the most severe constraints to high production of SP. Over 68% had low sweet potato production (LSPP). Determinants of SPPL were total farm size ($\beta=0.31$), cultivation of SP as a main livelihood activity ($\beta=0.16$), sweet potato farm size–SPFS ($\beta=0.16$), and constraints ($\beta=-0.19$). It is recommended that government and stakeholders should formulate and promote policies oriented toward mitigating unavailability of land for agricultural production, to bring about increase in farm size, this will led to increase production of SP.

Keywords: Farming households, Production Level, Sweet Potato Production, Sweet Potato

1. INTRODUCTION

Sweet potato (*Ipomoea batatas*[L.] Lam) is a member of morning glory (*Convolvulaceae*) family and the only specie among the family that comprises approximately 1000 species, that is of high economic value as a food crop (Nwanebo, 2012). It is among the most produced food crops in the world, as it ranks the seventh most produced food crop in the world, surpassed by rice, wheat, maize, potato, barley and cassava (Odojin, 2008). In Africa, according to Amengor et al. (2016), it is the third most important root and tuber crop, after cassava and yam.

Sweet potato is a globally produced root crop, due to the nutritional value of its fleshy storage roots, vine tips and leaves (Oyibo, 2019). It is produced in over 100 countries with an annual production of approximately 105 million tonnes per annum (Food and Agricultural Organization Statistic-FAOSTAT, 2017). Nigeria farmers produce

approximately 3.49 million tonnes of SP per annum (Mwanja et al., 2017).

Sweet potato fleshy storage roots, shoots, vine tips and leaves are of important use as major source of income for farming households as well as foods for humans and feeds for livestock. Nwanebo (2012) opined that its production serve to supplement farmers income as well as supplies raw materials for industries. Oke and Workneh (2013) asserted that sweet potato is a valuable source vitamin C, vitamin E, riboflavin, lutein, folic acid, protein, complex carbohydrates, vitamin B6, Vitamin B₂ and pyridoxine. Earlier study revealed that its fresh tuberous root provides vitamin A, which help in boosting human sight and correcting night blindness (Odebode, 2004). The crop has advantageous attributes over other root and tuber crops, such as low demand on soil nutrient and tolerance to drought as well as capability of producing reasonable outputs in agro-ecological areas where other crops would fail (Oyibo, 2019). Thus, it has the potential of playing a vital role as a livelihood crop. Its production is a viable economic activity for poverty reduction and food security (Odebode, 2004).

In Nigeria, SP is a crop that has been promoted for poverty reduction, food security and nutrition, through diverse efforts that focused on improving SPP. The improvement of SPP in Nigeria have been vigorously pursued through various implemented efforts (in form of policies, projects, programmes and research institute) such as Root and Tuber Expansion Programme–RTEP and National Root Crop Research Institute, among others (Nwanebo, 2012). Despite these laudable efforts, sweet potato is still under-explored in Nigeria. As argued by Nwanebo (2012), not much has been achieved on the status of SP in Nigeria despite the fact that the country has a wide range of agro-climatic conditions that favour the production of SP. Nigeria accounts for 3.7 per cent of the world SPP (Food and Agricultural Organization Statistic-FAOSTAT, 2017). In contrast to Nigeria, China accounts for 74 per cent of the world SPP, with Sichuan Province of China accounting for 18.5 percent of world SPP (FAOSTAT, 2017; Ogundele et al., 2008). These are indications of inadequate production of SP in Nigeria. The scale and persistence of low production of SP in Nigeria indicates that the poor status of SP in the country cannot be overcome simply by implementing diverse initiatives. Hence, to combat low SPP status among SP producers, cognizance should be given to other

variables such as sources of information on SPP and constraints to SPP. Also, if national SPP must be improved, there is need to focus attention on areas (states) where SPP is quite low, with huge potential for future growth in SPP.

The fact that Imo State of Nigeria is known for been endowed with fertile agricultural soil and tropical climate suitable for the production of root and tuber crops compared to other states of the country indicates that it has high access to advantageous environmental, ecological and climatic factors needed for high production of sweet potato. Oyibo (2015) reported a direct relationship between good environmental, ecological and climatic condition and high agricultural production. Hence, it is expected that Imo State should rank among the leading SP producers in Nigeria given their favourable climatic and soil conditions. Yet, several literatures (Egeonu, 2011; and National Food and Reserve Agency-NFRA, 2010) reported that Imo State rank among the least producers of SP in Nigeria. In Nigeria, Imo state ranks 22nd in production of SP, with production still on small scale level. This suggests that the SPP status in Imo State of Nigeria demands scientific investigation. It is against this backdrop that this study intends to ascertain the determinants of SPPL among FHs in Imo State, Nigeria.

Specifically the study sought to: describe the socio-personal characteristics of SP farmers; examine the enterprise characteristics of SP farmers; identify sources of information on SPP; identify constraints to SPP; and ascertain the level of SPP. Based on the objectives of the study, the following hypothesis were tested: there is no significant relationship between selected socio-personal characteristics, SP enterprise characteristics and level of SPP; there is no significant relationship between sources of information and level of SPP; and there is no significant contribution of selected independent variables to SPP status of farmers.

2. MATERIAL AND METHODS

2.1. Study area

The study was carried out in Imo State which is located in South East Geopolitical Zone of Nigeria. The study area lies between longitude 0°05' and 7°25' East of the Greenwich Meridian and latitude 4°45' and 7°15' North of the equator.

Imo State is divided into three agro-ecological zones by Imo State Agricultural Development Programme (ISADP). These are Owerri, Orlu and Okigwe zones.

2.2. Population and sampling procedure

The population of the study comprised all SP farmers in the study area. Multi-stage sampling procedure was used to select respondents for the study. The three ADPs zones (Owerri, Orlu and Okigwe) were purposively selected based on uniformity in SPP. Owerri, Orlu and Okigwe zones

have 70, 104 and 95 ADPs SP registered FHs, respectively. Fifty percent of ADPs SP registered FHs were randomly selected from each of the selected zones for analysis, using proportionate sampling technique. These were 35 SP FHs from Owerri zone; 53 SP FHs from Orlu zone; and 48 SP FHs from Okigwe zone. This gave a total of 135 SP FHs used as sample size for the study. The farmer responsible for SPP were interviewed in each of the selected FHs.

2.3. Data collection

The study was conducted between April and October 2018. Primary data used for the study were obtained through the use of pre-tested interview schedule. The interview schedule captured information on socio-economic characteristics, enterprise characteristics, sources of information on SPP, constraints to SPP and level of SPP.

2.4. Measurement of variables

Sources of information (SF) on SPP were measured by providing respondents with 10 SF, which include radio, television and newspaper, among others. Respondents were asked to tick how often they received information on SPP from the various sources. This was rated on a 4-point rating scale of 'Regularly (3)', 'Occasionally (2)', 'seldom (1)' and 'not at all (0)'. The mean scores of each item was computed and used to rank the SF from the most used to the least used.

To identify the constraints to SPP, a list of 11 possible constraints to SPP was presented to respondents. The severity of the 11 possible constraints to SPP was measured. Response was rated using a three-point rating scale of "Severe constraint (2)", "Mild constraint (1)", and "Not a constraint". The mean score of each item was computed and used to rank the constraints in order of severity.

In order to ascertain the level of SPP, respondents were asked to indicate the quantity of SP output (in kg) for 2016/2017 farming season. The SP output in the study was estimates given by respondents. Okehet *et al.* (2014) measured crop output using estimated value from rural farmers' memory method. The estimated variables from farmers' memory were measured and operationalised. Sweet potato output was measured and operationalised as follow: estimated number of 50kg bags of SP from one plot. The estimated value given was converted to the number of bags produced from total plot cultivated, which was later converted to tonne (using 50kg bag of sweet potato = 0.05 tonnes of SP). An index of SPP was calculated by adding all the responses. A mean score of 63.25 tonnes was obtained from the SPP index and respondents above the mean were classified as having high production level and those below were classified as having low production level of SP.

2.5. Data analysis

The Statistical Package for Social Sciences–SPSS was used in data analysis. Descriptive statistics such as frequency counts, percentages and means were used to analyse data for objectives while hypotheses were tested through inferential statistics such as Chi-square, Pearson Product Moment Correlation-PPMC and multiple regression. The multiple regression model used was specified as follow:

$$Y = a + b_1 X_1 + \dots + b_n X_n + e$$

Where Y= level of SPP (score value); a= constant term; b_1, b_2, \dots, b_n = regression coefficient; e = error; and X_1, X_2, \dots, X_n = regression parameters which include: X_1 = SP farm size, X_2 = Cultivation

of SP as main livelihood activity(Yes =1, Otherwise =0), X_3 = Farm size, X_4 = Constraints

3. RESULTS

3.1. Socio-personal characteristics of respondents

The result on age distribution of respondents shows that the mean age of respondents was about 59 years (Table 1). A fairly large percent (55.6%) of the respondents were males. The majority (50.4%) of respondents were married. The majority (36.3%) of the respondents had secondary education, while 15.6% had tertiary education. Also, only 19.3% had no formal education. The mean household size of respondents was fivepersons.

Table 1: Distribution of respondents based on socio-personal characteristics

Variables	Categories	Frequency	%	Mean
Age (years)	Less than equal to 35	5	3.7	58.87 years
	36-45	15	11.0	
	46-55	30	22.2	
	56-65	47	34.8	
	Above 65	38	28.3	
Sex	Male	75	55.6	
	female	60	44.4	
Marital status	Single	41	30.4	
	Married	68	50.4	
	Divorced	8	5.6	
	Widowed/widower	18	13.3	
Educational attainment	No formal education	26	19.3	
	Primary education	28	20.7	
	Secondary education	49	36.3	
	Tertiary education	21	15.6	
	Adult education	11	8.1	
Household size (person)	None	9	6.7	5 persons
	1-3 persons	30	22.2	
	4-6 persons	57	42.2	
	Above 6 persons	39	28.9	

3.2. Enterprise characteristics of respondents

The average farm size of 2.42 ha was obtained as shown in Table 2. The majority (74.1%) of the respondents do not engaged in SPP as the main livelihood activity. This implies that most of the respondents considered SP as a minor crop. This supports the position of Nwanebo (2012) that SP is

regarded agriculturally as a minor crop. The respondents cultivated an average SP farm size of about two ha. The mean years of SPP experience of respondents was about 6 years. The major source of farm labour was hired labour (48.1%). The majority (65.9%) of the respondents acquired land for agricultural production by inheritance.

Table 2: Distribution of respondents based on sweet potato (SP) enterprise characteristics

Variables	Categories	f	%
Farm size (hectares)	Less than 1	18	13.3
	1-1.9	31	23.0
	2-2.9	23	17.0
	Above 3	63	46.7
	Mean farm size	2.42	
Cultivation of SP as a major livelihood activity	Yes	35	25.9
Sweet potato farm size (hectares)	Less than equal to 2	95	70.4
	2.1-5	30	22.2
	5.1-8	6	4.4
	Above 8	4	3.0
	Mean SP farm size	2.2	
Sweet potato experience (years)	Less than equal to 5	88	65.3
	6-15	29	21.3
	16-25	14	10.4
	Above 25	4	3.0
	Mean SP experience	5.6	
Main source of farm labour	Family labour	37	27.4
	Mechanized labour	11	8.1
	Hired labour	65	48.1
	Manual labour	22	16.4
Sources of farm land	Inherited	93	65.9
	Leased	17	13.6
	Purchased	19	16.0
	Gifted	6	4.5

3.3. Sources of information on SPP

Result in Table 3 reveals that respondents accessed SPP information mostly through neighbour (Mean = 1.45), radio (Mean = 1.30) and friends (Mean = 1.24). It is noteworthy that a little above

half (51.9%) of the respondents always sourced for information on SP from neighbour. This implies that farmers contact with themselves is the most effective means of disseminating information among themselves in the study area.

Table 3: Distribution of respondents sources of information on sweet potato production (SPP)

Sources of information	Always (%)	Occasionally (%)	Never (%)	Mean	Rank
Radio	43.7	42.2	14.1	1.30	2 nd
Television	18.5	56.3	25.2	0.93	5 th
Newspaper	11.1	52.6	36.3	0.75	6 th
Extension agent	36.3	31.9	31.9	1.04	4 th
Billboards	2.2	23.0	74.8	0.27	9 th
Posters	9.6	9.3	71.1	0.39	8 th
Handbills	6.7	26.7	66.7	0.4	7 th
Family and Friends	40.7	42.2	17.0	1.24	3 rd
Neighbour	51.9	41.5	6.7	1.45	1 st

3.4. Constraints to SPP

Table 4 shows that on the overall, unavailability of land (Mean = 1.56) was the most

severe constraint to SPP. This is followed by high hired labour requirement and cost (Mean = 1.54) and inadequate infrastructure (Mean = 1.53).

Table 4: Distribution of respondents by constraints to SPP

Items	NC (%)	MC (%)	SC (%)	WMS	Rank
Lack of local market for SP	61.5	27.4	10.4	0.48	11 th
Lack/inadequate SP vines	25.9	51.1	23.0	0.97	10 th
Lack of technical advice	19.3	53.3	27.4	1.08	8 th
Lack of knowledge on method of planting SP	23.7	46.7	29.6	1.06	9 th
Transportation problems	14.1	54.8	31.1	1.17	7 th
Poor market demand of SP product	19.3	19.3	61.5	1.42	4 th
Disease and pest	10.4	38.5	51.1	1.41	5 th
Unavailability of land	11.1	22.2	66.7	1.56	1 st
Poor access to extension services	11.9	37.0	66.7	1.39	6 th
High hired labour requirement and cost	13.3	19.3	67.4	1.54	2 nd
Inadequate infrastructure	13.3	20.0	66.7	1.53	3 rd

Note: NC = not a constraint; MC = mild constraint; SC = severe constraint; WMS = weighted mean score

The result on SPP of respondents presented in Table 5 indicates that the mean SPP of respondents was 63.25 tonnes per annum. The results were suggestive of small scale production of SP.

3.5. Respondents' SPP

Table 5: Distribution of respondents' based SPP (output) per annum

Variables	Categories	Frequency	Percentages	Mean
Sweet potato production (tonnes)	≤ 20	2	1.5	63.25
	20.1 - 40	29	21.3	
	40.1 - 60	53	39.3	
	Above 60	51	38	

3.6. Categorisation of respondents by SPP

Data in Table 6 reveals the categorisation of respondents based on SPP. A fairly large percentage

(68.9%) of the respondents had low SPP, while 31.1% of them had high SPP.

Table 6: Categorization of respondents based on SPP (output) per annum

SPP	Frequency	percentage	Mean
Low (Less than 63.25)	93	68.9	63.25
High (63.25 and above)	42	31.1	

3.7. Chi-square and correlation analyses between selected socioeconomic characteristics, SP enterprise characteristics and SPP status

Results in Table 7 show that age ($r = -0.15$, $p > 0.05$), sex ($X^2 = 1.36$, $p > 0.05$), marital status ($X^2 = 6.03$, $p > 0.05$), household size ($X^2 = 5.01$, $p > 0.05$) educational attainment ($X^2 = 11.80$, $p > 0.05$) and

religion ($X^2 = 3.18$, $p > 0.05$) were not significantly related to SPP status. The Table further reveals that SPFS ($X^2 = 14.97$, $p > 0.05$) was significantly related to SPP.

This implies that SPFS had significant relationship with SPP status.

Table 7. Chi-square and correlation analysis of socioeconomic, enterprise characteristics and SPP status

Variable	Df	X^2	r-value	p-value
Age	-	-	-0.154	0.075
Sex	2	1.363	-	0.506
Marital status	6	6.030	-	0.420
Number of children	6	5.013	-	0.542
Educational attainment	8	11.804	-	0.160
Sweet potato farm size	6	14.968*	-	0.021

Significant at $p \leq 0.05$

3.8. Correlation analyses between sources of SPP and SPP status

The result in Table 8 indicates that there was no significant relationship between sources of

information on SPP and SPP status ($r = 0.38$, $p > 0.05$). This implies that sources of information on SPP do not necessarily translate into high level of SPP.

Table 8: Correlation between sources of information and SPP status

Variable	r-value	p-value
Sources of information	0.138	0.110

Significant at $p \leq 0.05$

3.9. Determinants of SPPL level

Table 9 reveals that the R^2 value was 0.345. This indicates that the regression model explain 34% of the SPP of respondents. It further revealed that

total farm size ($\beta = 0.31$, $p < 0.05$), cultivation of SP as main livelihood activity ($\beta = 0.16$, $p < 0.05$), SPFS ($\beta = 0.16$, $p < 0.05$) and constraints ($\beta = -0.19$, $p < 0.05$) contributed significantly to SPPL.

Table 9: Regression analysis showing the contribution of predictors to SPP

Items	Beta	t-value	p-value
Total farm size	0.31*	4.00	0.00
Cultivation of SP as a main livelihood activity (yes)	0.16*	2.19	0.03
Sweet potato farm size	0.16*	2.15	0.03
Constraints to SPP	-0.19*	2.44	0.02
R^2	0.345		
F	9.559		

*Significant at $p \leq 0.05$

4. DISCUSSION

The SP producers were ageing, which implies that they were not predominantly in economically active age and may not have the energy to meet the labour demands of agricultural production *vis-à-vis* SPP. Hence, respondents cannot actively practice agricultural production of all form. The result corroborates the finding of Oboh and Sani (2009), that there is ageing among farming population in Nigeria. The high presence of ageing farmers among the respondents could be due to the high rate of youth rural-urban migration in Nigeria, which is rooted in the migration pattern of younger aged people in rural areas. This support the position of Ogunbanwo (2008) that most of the youths in the rural areas have migrated to urban centre. Furthermore, the age distribution of respondents is likely to affect SPPL, as older or ageing age people are more likely not to have the energy for SP activities, hence may have LSPP.

It was observed that most of the SP producers were males. The result corroborates Chahet *al.* (2020) who found that majority of SP farmers were males. The low number of females could be due to the physical demand, which result in discouraging women from actively involving in SPP (Nwanebo, 2012).

The respondent were mostly married. The result is in line with Ebewore (2016) who reported that a high proportion of farmers in rural areas were married. This is a reflection of the high value placed on marriage in Africa, especially in the rural settings (Eforuoku, 2018). Marriage could also be induced by

need for family labour as farm labour source. This is in consonance with the position of Ekong (2003), that married people in rural areas, see marriage as a very essential factor for facilitating farming and production activities. This is also consistent with the position of Akinbile (2007) that the effect of marriage enhances the release of family labour, thus making more hands available for productive activities in the farm.

That educational attainment of the SP farmers was predominantly secondary education, suggesting average level of education among the farmers. The implication is respondents' literacy level was average. The educational status of respondents is likely to affect SPP, as average level of education will likely limit the adoption of new technologies, ideas and methods in SPP, hence have LSPP. Education helps to enhance farmers' ability to understand and evaluate new production techniques, leading to increased production and productivity (Nwaru, 2007). Education among SP farmers, according to Odebode (2011) bring about changes in their knowledge, skills and attitude, which subsequently results in improve production of SP.

The average household size of SP farmers is relatively low when compared to the average household size of 7 persons among rural dwellers in Nigeria. This is likely due to the need for small family size, which is as a result of decrease in household food security. This is in tandem with Babatunde *et al.* (2007) who posited that the lower the household sizes, the more likelihood that the household would be food secured. The finding

contradicts the result of *Chahet al. (2020)* who found that the average household size per farm family is 6 persons. The finding implies that more farm labour will be required to meet and maintain the SPP needs of the farmer.

It was observed that the total farm size cultivated by the respondents was small. This suggests that respondents may not have adequate land for cultivation of diverse crops. Hence, respondents cannot actively practice agricultural production of any form. Farm size has the tendency of propelling farmers to be more productive (*Akinbile, 2007*).

The proportion of SP farmland cultivated by respondents was small. This implies that the respondents are generally small-scale farmers with respect to SP farming, hence, production of SP may be limited. The result of this study agrees with *Adewumi and Adebayo (2008)* that SP farmers grow SP on a small-scale level.

Most of the respondents had low level of SP farming and/or production experience. This implies that respondents have not been consistent growers of SP over the past few years. This is in line with *Fetugaet al. (2008)* who posited that most farmers have shifted their attention from producing SP to cassava and other crops. Furthermore, the years of SPP experience distribution of respondents is likely to affect SPP, as low experienced SP producers are more likely to be unconscious of production practices, hence have LLSPP. This supports the position of *Adeniyi and Yekinni (2015)* that farmer's farming experience is directly proportional to knowledge acquired in enhancing production.

The respondents indicated that hired labour has been the main source of labour in SPP. The high use of hired labour is likely due to the small household size among the respondents in the study area, which cannot meet the intensive labour demand of SPP.

It was observed that the respondents acquired land for agricultural production by mostly inheritance. This implies that farm ownership among SP producers is not restricted in the study area. Hence, respondents can actively participate in agricultural activities. The acquisition of land by inheritance increases land availability for the resource poor and could enhance participation in agricultural activities and production of any form as opined by *Eforuoku (2018)*. This also corroborates the summation of *Nnadi and Akwiwu (2008)*, who asserted that land ownership could increase participation in agricultural activities. However, land acquisition by inheritance could lead to land fragmentation and small farm size (*Adewumi and Adebayo, 2008*), which may lead to LLSPP.

The respondents indicated that they access SPP information mostly through neighbour and radio, with poster being the least used information source. The high access through neighbour could be as a result of clustered/compact settlement pattern in the

study area. Also, access through radio could be due to the low cost of its purchase and maintenance as well as its profitability. Radio is among the most widely used sources of among rural farmers, due to its comparative advantages (*Eforuoku, 2018; Fadairoet al., 2011*). Furthermore, the sources of information on SPP of respondent is likely to affect SPP, as use of neighbour as means of information is more likely to be limited with respect to improved knowledge/information on SPP and appropriate communication skills, hence resulting to low SPP.

The respondents cited unavailability of land, high hired labour requirement and/or cost, and inadequate infrastructure as major constraints limiting their SPP. The problem of non-availability of land has been indicated as the cause of low production level among farmers (*Fetugaet al., 2008*). Unavailability of land hinders farmers from adopting improved production technologies which enhance high production level. This is in line with the position of *Mbanaso (2011)* who reported that scarcity of land constraint adoption of SPP technologies. Constraint to SPP due to high hired labour requirement could be as a result of the tedious and/or tasking nature of SPP activities such as land clearing, ridge/heap making, weeding/weed control, harvesting and transportation/carriage. This has made SP farmers to result in using hired labour to carry out those production operations. This supports the findings of *Adewumi and Adebayo (2008)* who reported that SP farmers utilised hired labour to carry out land clearing, ridging weeding and spraying. High hired labour cost as a constraint could be as a result of shortage of hired labour during tedious production operations such as land clearing and ridging. This is in consonance with the position of *Adewumi and Adebayo (2008)* that shortage of labour during land clearing and ridging led to a high cost of performing such operations.

It was observed that the level of SPP was predominantly inadequate. The result disagreed with *Nwanebo (2012)* who found medium/moderate production level of SP. The LLSPP is suggestive of small scale production of SP among respondents in the study area. The recorded inadequate and/or small-scale production of SP could be due to the constraints of unavailability of land and high hired labour requirement and/or cost as found in the study. In addition, the LLSPP could be due to small farm size allocated to SP. This is consistent with *Nwanebo (2012)* who reported that SP farm size is an important determinant of level of SPP.

The positive correlation between SPFS and level of SPP implies that the level of SPP increases as the SPFS increases. It is expected that with increased SPFS, there is likely to be higher quantity of SPP, hence increased SPFS will enhance/stimulate high level SPP. Farmers with small farm size have limited production potentials, thus making them to

remain at subsistence production level (Akinbile, 2007).

The sources of SPP information did not correlate with level of SPP. This suggests that the fact that respondents have high access to SPP information sources does not guarantee high level of SPP. Sweet potato production could be influenced by constraints to SPP and cultivation of SP as a major crop.

Total farm size, cultivation of SP as a main livelihood crop, SPFS, and constraints were determinants of respondents' SPP. The significant but negative contribution of constraints to level of SPP suggests that increased constraint led to LLSPP. The significant contribution of total farm size to level of SPP establish that total farm size affects SPP. Respondents with larger farm sizes are likely to allocate large portion of their farm land to SPP, which can be used to expand SPhectrages. Also, farmers with larger total farm sizes are in a better position to practice sole-cropping as well as commercial production of different crops. The significant contribution of SPFS to SPPL suggest that with increase SPFS, there is significant increase in SPP. This corroborate Adewumi and Adebayo (2008) who posited that the more the area of land cultivated for SPP, the more the SP output. Larger farm size for SPP contributes to the production of SP either as a means of utilization of all the planting material sourced by farmers or as means of expanding the SPhectrages. Also, respondents with larger farm sizes for SPP are likely to earn higher income from SPP, which can be used to purchase improved planting materials and farm implements that will likely increased production of SP. This corroborate Amao and Awoyemi (2009), that larger farm size can influence agricultural production and/or productivity through increased revenue. The significance of cultivation of SP as a main crop to level of SPP implies that with increased cultivation of SP as a major crop, SPPL will increase.

5. CONCLUSION AND RECOMMENDATIONS

Total farm size, SPFS, cultivation of SP as a main crop and constraints were major predictors or determinants of SPPL. Sweet potato production information was accessed mainly through neighbor, radio and friends. Constraints to high level of SPP were unavailability of land, high hired labour requirement/cost and inadequate infrastructure. The level of SPP was low.

Based on the conclusion, the following recommendations are proffered for high level (improved) production of SP in Imo State of Nigeria: farmers should be encouraged to cultivate SP as a major crop; agricultural programmes and policies oriented towards taking cultivation of SP as a major crop should be promoted to engender increased and/or enhance production of SP rather than emphasizing production of root and tuber crop;

farmers should be taught how to plan and manage their resources (total farm size and SPFS) such that they have access to sufficient land space for increased production of SP; government and stakeholders should formulate and promote policies oriented toward mitigating unavailability of land for agricultural production, to bring about increase or large total farm size *vis a vis* SPFS, which will led to increase production of SP; and there should be adequate provision of infrastructure in the rural area for effective production of SP as this encourage SP farmers to change their scale of production, hence, increase SPP.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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