

JOURNAL OF AGRICULTURE

ISSN 2476-8359 Volume 4 Issue 4, August 2017.Page 246- 252

http://www.palgojournals.org/PJA/Index.htm Corresponding Authors Email:okelanre@gmail.com

SOCIOECONOMIC FACTORS INFLUENCING THE INCLUSION OF ROOT AND TUBER EXPANSION PROJECT CROPS IN THE CROPPING SYSTEMS OF FARMERS IN OGO OLUWA AREA OF OYO STATE, NIGERIA

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Accepted 23 August, 2017

This study examined socioeconomic factors influencing the inclusion of Root and Tuber Expansion Project crops in the cropping system of farmers in Oyo state. Data were collected using structured interview schedule that was administered on 120 farmers randomly selected using a multistage sampling techniques. The data collected were analyzed using descriptive and inferential statistics (Chi-Square); to describe the socio-economic variables and the formulated hypothesis respectively. And the chi square analysis showed the significant relationships that existed between the socio economic characteristics of respondents and the Inclusion of RTEP crops in the cropping systems. The findings of this study revealed that age, gender, marital status, educational attainment, years spent in school, household size, farming experience and farm size are the identified socioeconomic factors that significantly influenced the inclusion of RTEP crops in the cropping systems of respondents in the study area.

Keywords: Socioeconomic Factors, Influencing, Inclusion, RTEP Crops, Cropping Systems and Oyo state

INTRODUCTION

Roots and tubers, most notably cassava, sweet potato, yam and potatoes (*Solanum/Irish*) are some of the most important primary crops with an estimated average of 20 percent of the daily per capita calorie intake for the 640 million inhabitants of Sub-Saharan Africa, where with the growing population there is increasing demand for these crops both for food and for feeds. They play a critical role in the global food system, particularly in the developing world, where they were ranked among the top 10 food crops (Scott *et. al.* 2000; Phillips *et. al.*, 2004; Nweke, 2004). The production of roots and tubers in developing countries had an estimated annual value of more than 41 billion U.S. dollars or nearly one fourth the values of the major cereals (Scott *et al.* 2000).

Roots and tubers contribute to the energy and nutrition requirements of more than 2 billion people(Scott*et.al.*,2000).; constitute an important source of income in rural and marginal areas; have multiple uses, most notably as food security crops, regular food crops, cash crops, and; are increasingly used as livestock feed and raw material for industrial purposes(Scott*et.al.*,2000).. They have long served as the principal source of food and nutrition for many of the world's poorest and undernourished households and are generally valued for their stable yields under conditions in which other crops may fail (Scott *et. al.*, 2000).

Several efforts have been made by Nigeria Government to increase the production of root and tuber crops in Nigeria. Part of these efforts was the formulation of Root and Tuber Expansion Project (RTEP) between 1995 and 1997 to consolidate the gains made under the Cassava Multiplication Project (CMP) in order to enhance national food self-sufficiency and improve rural household food security and income of poor farmers within the southern and middle belt states of the country. And its immediate objectives include: The development of sustainable cropping systems through the testing, multiplication and release of appropriate root-and-tuber varieties; Strengthening of support services in research and extension and orientating these towards the priority needs of farmers, especially women farmers' and the

improvement of simple processing techniques and equipment, the provision of marketing support and advice to farmers. And the long-term objective of the programme is to improve the living conditions, income and food security of poor smallholder households in the programme area.

The Root and Tuber Expansion Project (RTEP) targets smallholders, i.e., those with less than 2 ha of land per household; eighteen (18) of the southern and middle-belt states of Nigeria was selected and the programme cover up to 25 states in the root-and-tuber-growing belt, subject to fulfillment of eligibility criteria (including adequate state-counterpart funding and proper Agricultural Development Project (ADP) staffing): Abia, Akwa-Ibom, Anambra, Bayelsa, Benue, Cross River, Delta, Ebonyi, Edo, Ekiti, Enugu, Kaduna, Kogi, Kwara, Imo, Lagos, Nassarawa, Niger, Ogun, Ondo, Osun, Oyo, Plateau, Rivers and Taraba state. The rural population of these states is about 35 million. The main agro-ecological zones and their respective annual rainfall are: forest zone (over 1 750 mm); derived savannah zone (1 250-1 750 mm); and southern Guinea zone (1 200-1 400 mm).

In the 2003/2004, Nigeria recorded national production figures were 28.5, 21.7 and 1.15 million metric tons for cassava, yam and sweet potato respectively in that sequence. (P.C.U, 2004). Most of the recorded output came from small scale holders and among the objectives of RTEP is the release of appropriate root and tuber varieties into the area to ensure sustainable cropping system.

Hence, there is a need to investigate the extent to which these crops have been included in the cropping system among farmers and determine socioeconomic factors that influences the inclusion of RTEP crops in the study area.

It is in the light of this, that this study will determine socioeconomic factor influencing the inclusion of RTEP crops in the cropping system of respondent in the study area having considered the local ethics guiding the area.

MATERIALS AND METHOD Study Area

The study was carried out in Ogo-Oluwa Local Government Area (L.G.A.) of Oyo State area, Nigeria. Ogo-Oluwa L.G.A. is one of major five local government areas that made up Ogbomoso Agricultural zone in Oyo State. It covered about 96kilometers and with an estimated area of 369 square kilometers with the local government headquarters is located in Ajawa town. The L.G.A. is located on the Latitude 8 0 15'N of the Equator and Longitude 4 0 15'E of the Greenwich meridian: 300-600 mm above the sea level). The area belongs to derived savannah agro-ecological zone with uniform temperature, moderate to heavy seasonal rainfall and relative humidity. The average annual temperature and rainfall are 27°C and 1.247 mm respectively (Oguntoyinbo, 1988).

Ogo-Oluwa L.G.A. was estimated to be 65,184 (NPC, 2006). The Ogo-Oluwa L.G.A. also experience two major seasons type that is dry and wet season. The rainy season is between mid of March to October and dry season is between November to February. The major occupation of the inhabitants of Ogo-Oluwa L.G.A. is farming; crops like maize, sorghum, yam, cassava, potatoes, vegetables, etc. are usually grown in the area.

Population of the Study

All root and tuber crops farmers (both male and female) in Ogo-Oluwa L.G.A. were the targeted population for this study.

Sampling Procedure and Sample Size

The L.G.A. is an Agricultural extension block of Oyo State Agricultural Development Programme (OYSADEP). A multistage sampling procedure was used in selecting the sample for the study which comprises of three stages. Firstly, out of the eight (8) cells in the L.G.A. four (4) cells was selected randomly, and then two (2) villages were further selected from each cell, making a total number eight (8) villages. And lastly, in each of the villages, fifteen (15) farmers were randomly selected to arrive at a total number of one hundred and twenty (120) farmers that constitute the sample size for this study.

Method of Data Collection

Primary data for this study was collected from the respondents through structured interview schedule. The interview schedule contained both closed and open ended questions designed under supervision of Extension Agent of Ogbomoso Agricultural zone of Oyo State Agricultural Development (OYSADEP) in line with the objectives of this study. And the questions were also certified by professionals in the field of agricultural extension and rural development.

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Measurement of Variables

The variables for this study include both dependent and independent variables. The dependent variable is the inclusion of RTEP crops in cropping systems of farmers in Ogo-Oluwa L.G.A. of Oyo state, while the independent variables are the socioeconomic factors influencing the inclusion of RTEP crops. The respondents' age was measured in years, farmers farming experience also measured in years and farm size was measured in hectares. Gender was determined by identifying respondents as male or female, marital status was determined by asking the respondents to state their marital status as been single, married, divorced, widow or widower while level of education of the respondents in the study area was determined by telling the respondents to state the level of education they had as been formal education, no formal education, adult education and Quran education.

Analysis of Data

The statistical tools employed for this study include both descriptive and inferential statistics. The descriptive include frequency distribution and percentages, while chi square was used to test the formulated hypothesis.

RESULTS PRESENTATION AND DISCUSSION

This deals with the analysis of data and interpretation of results in line with the focus of this study. Data presented on table 1 reveals that 40.0 percent of the respondents have their age within the range of 21 to 40 years, 43.3 percent were within the range of 41 to 60 years, 15 percent are within the range of 61 to 80 years, and 1.7 percent of the respondents age fall within the range of 81 years and above. The mean age is 48 years. This reveals that majority of the respondents were in their active age, and were likely to be more responsive to adopt the innovation. This is in line with what (Obisesanetal,2013)pointed out that active age is regarded as agile age with more energy to dissipate and concentrate on production effort.

The results in table 1 further reveals that about 35 percent of the respondents fall within the range of 1 to 5 household members, 47.5 percent fall within the range of 6 to 10 while 15 percent also fall within the range of 11 to 15 and 2.5 percent are 20 and above in their household. The mean for respondents' household size is 8. This implies that majority of the respondents have a household size of 6 to 10 which will also contribute to family labour as well. This is also in conformity with (Jane et.al. 2013) that large household size could be the source of family labour.

The distributions in table 1 again shows that 38.3 percent of the respondents spent 1 to 5 years in school, 46.7 percent of them spent 6 to 10 years in school, 13.3 percent of them also spent 11 to 15 years in school and 1.7 percent of the respondents spent 16 years and above in school. The mean for respondent's years spent in school is 6 year.

Also, information in table 1 reveals that 56.7 percent of the respondents have been involved in farming for a period of 1-20 years, 33.3 percent fall within the range of 21-40 years of farming experience, 8.3 percent fall within the range of 41-60 years while 1.7 percent falls within the range of 60 years and above. The mean for respondents farming experience is 23 years. It implies that they have the adequate knowledge of the farming activities. This is also in consistent with (Amanuel,2008) farming experience will enable farmers to have better knowledge which in turn may be the basis for innovativeness. The data in table 1 still shows that 60.0 percent of the respondents had farm size within the range of 1-5 hectares, 23.3 percent had farm size within the range of 6-10 hectares while 15.0 percent had farm size within the range of 11-15 hectares and 1.7 percent had farm size within the range of 16 hectares and above. The mean for respondents' farm size is 6 hectares.

The result in table 1 again reveals that 79.2 percent of the respondents were males while the remaining 20.8 percent respondents were females. This implies that majority of the respondents sampled for this study were males and this might be as a result of labour intensive nature of farming activities which may be tedious for females. This is in uniformity with the findings of (Nwekeet.al., 2000, Tijani and Thomas, 2011) that more male are involve root and tuber farming in Nigeria.

Table 1 further show that 9.2 percent of the respondents were single while 85.8 percent were married and 5.0 percent were widowed. This implies that majority of the respondents were expected to be responsible and independent in taking decision concerning their farming enterprises. This is in line with (Emodi et.al. 2014) that the married are faced with responsibility of deciding to take care of their family which shows that they are responsible.

Data in table 1 also shows the distribution of respondents according to their level of education. About 73 percent of the respondents had formal education, 25 percent had no formal education while 0.8 percent of them had adult education and 0.8 percent had Quran education. This implies that majority of respondents sampled were literates, hence, help the farmers understanding of innovation and hastening the adoption of the innovation. This is in line with what (Obisesan et.al. 2013) found out.

Results in table 1 again reveals that 67.5 percent of respondents' land acquisitions were by inheritance, 1.7 percent was by pledges, 15.8 percent were by leasing while 0.8 percent is by purchase and 14.2 percent is by rent. This shows that majority of the respondents' means of land acquisitions were by inheritance.

The information presented in table 1 also reveals that 10.0 percent of the respondents' labour source is by family labour, 2.5 percent were by personal effort while 87.5 percent were by hired labour. This shows that, majority of respondents sampled in the study area hired labourers in carrying out their farming activities probably due to nature of the enterprise.

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Table 1: Distribution of Respondents according to their Socio-economic Characteristic	Table	1: Distribution c	of Respondents ac	cording to their S	Socio-economic	Characteristics
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Source: Field survey, 2012.

Distributions in table 2 shows that 3.3 percent of respondent's practiced mono-cropping systems while 66.7 percent practice intercropping systems and 30 percent practiced multiple cropping systems. This reveals that intercropping systems is dominant cropping systems type in the study area

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The data in table 2 also reveals the crops combination planted by respondents in the study area. Ninety nine percent of the respondents sampled planted root and tuber crops together with other crops while 0.8 percent of them planted root and tuber crops alone.

The result of the field survey in table 2 again reveals that 84.2 percent of the respondents were aware of R.T.E.P while 15.8 percent of the respondents were not aware. It implies that information about Root and Tuber Expansion Programme was well disseminated.

Data presented in table 2 further shows that 70 percent of the respondents were actively involved in R.T.E.P while 30 percent of the respondents were not involved in the programme. This implies that Root and Tuber Expansion Programme are well embraced by respondents in the study area.

 Table 2: Distribution of Respondents according to Cropping System Type, Crops Combination and R.T.E.P Awareness and Involvement

Variables	F	r	е	q	u	е	n	С	у	Ρ	ercentage	(%)
Type of cropping system												
Mono cropping	4									3		3
Intercropping	8								0	6	6.	7
Multiple cropping	3								6	3	0.	0
Crops Combination												
Root and tuber crop only	1									0		8
Root and tuber crops with other crops	1				1				9	9	9.	2
R.T.E.P awareness												
Y e s	1				0				1	8	4.	2
N 0	1								9	1	5.	8
R.T.E.P involvement												
Y e s	8								4	7	0.	0
No	3								6	3	0.	0

Source: Field survey, 2012.

The information presented in table 3 reveals that 88.3 percent of the respondents included yam in the cropping system while 22.5 percent included potatoes and 93.3 percent included cassava. This implies that majority of respondents' cultivated cassava and yam more than all other root and tuber crops.

Table 3: Distribution of Respondents according to Root and Tube	er Crops Included
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V	а	r	i	а	b		е	s	*	F	r	е	q	u	е	n	С	у	Ρ	е	rс	е	n	t a	a g	је	(%)	
Ro	ota	a n d	ltu	beı	· cr	ор	s																						
Υ				а				m	1					0				6	8			8						3	
Ρ	0	t	а	i t	: (0	е	s	2									7	2			2						5	
С	а	:	s	s	а		v	а	1					1				2	9			3						3	
*/\					1																								-

*(Multiple Responses)

Source: Field survey, 2012.

Hypothesis Testing

There is no significant relationship between respondents' socio economic characteristics and the inclusion of RTEP crops in the cropping systems.

The information in table 4 shows that age ($x^2 = 110.916$, p< 0.000), gender ($x^2 = 40.833$, p< 0.002), marital status ($x^2 = 149.150$, p< 0.00), educational attainment ($x^2 = 168.200$, p< 0.001), years spent in school ($x^2 = 181.383$, p< 0.003), household size ($x^2 = 56.167$, p< 0.001), farming experience ($x^2 = 165.167$, p< 0.000), farm size ($x^2 = 78.100$, p< 0.002) are significantly related with the inclusion of root and tuber crops in the cropping system. This implies that farmers in the study area have attained high level of educational which is likely to influence positively the adoption of RTEP crops in the cropping systems while age implication of farmers in the study area reveals that they are in their active age which increase their opportunity of carrying out farming activities, hence increase the inclusion of RTEP crops in their cropping systems. This is in line with what (Obisesan etal,2013) pointed out that active age is regarded as agile age with more energy to dissipate and concentrate on production effort.

The influence of high level of farming experience on adoption may bedue to their knowledge of farming activities which may assist them in taking a quantitative decision on the inclusion of RTEP crops in the cropping systems. This is also in

consistent with(Amanuel,2008)that a farming experience will enable farmers to have better knowledge which in turn may be the basis for innovativeness.

Chi square analysis shows the significant relationship between age, gender, marital status, educational attainment, years spent in school, household size, farming experience and farm size implies that farmers in the study area have good knowledge of RTEP crops and been facilitated by socioeconomic attainment of respondents, then influenced the inclusion of RTEP crops in their cropping systems.

 Table 4: Chi-Square Analysis of Respondents' Socio economic characteristics and Inclusion of Root and Tuber Crops in the Cropping

 Systems

Variables	С	hi squa	rе	D	f	Р	v	а	Ιu	е	Decision
A g e	1	10.91	6	3	1	0		0	0	0	Significant
Gender	4	0.83	3	1		0		0	0	2	Significant
Marital status	1	49.15	0	2		0		0	0	0	Significant
Educational attainment	1	68.20	0	3		0		0	0	1	Significant
Years spent in school	1	81.38	3	1	2	0		0	0	3	Significant
Household size	5	6.16	7	1	3	0		0	0	1	Significant
Farming experience	1	65.16	7	2	8	0		0	0	0	Significant
Farm size	7	8.10	0	1	3	0		0	0	2	<u>Significant</u>
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Significant level = P≤ 0.01

Source: Field survey, 2012.

CONCLUSION

This study reveals that farmers' age, gender, marital status, educational attainment, years spent in school, household size, farming experience and farm size are the socioeconomic factors that significantly influenced the inclusion of RTEP crops in the cropping system of farmers in the study area.

RECOMMENDATIONS

Based on findings of this study the following recommendations are made;

- Extension agencies should intensify efforts at educating the farmers on the importance of RTEP crops in the cropping systems.
- Inputs relevant for the inclusion of root and tuber crops in the cropping system should be made available to farmers at affordable price.
- And farmers should be willing to include RTEP crops in their cropping systems.

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