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Research Article

Assessment of Participation of Women in Yam Production in Paikoro, Nigeria

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Abstract
The contribution of men in Agricultural activities is majorly recognized unlike the efforts of women. This study examined the effects of women participation in yam production in Paikoro Local Government Area of Niger State, Nigeria. Multi-stage random sampling technique was adopted, and a proportionate 20% of registered women farmers were selected making a total of 121 respondents. A well-structured questionnaire was used alongside oral interview to collect data from the respondents. Descriptive statistics (percentage, frequency and a 3-point likert scale) and Ordinary Least Square (OLS) were used to analyze the data collected. The result showed that more of the respondents aged between 31and 40, and that increase in income is the most benefit derived from participation in yam production. Also, the result showed that participation in majority of the farm level operations was high with the exception of ridging, fertilizer application and pesticide application. Results from OLS regression showed that distance to farm is negatively significant while household size, farm size and income were positively significant at 0.01 level of significance. Despite the level of involvement of women in yam production, inadequate farm inputs (96.7%), inadequate capital(95.0%) and land acquisition problems Forming associations in order to pull resources and gain access to loan is recommended. Introduction of adult education, extension training and follow up programs are also recommended. Formulation of land acquisition policies in favor of women by Government can go a long way in solve the problem of land acquisition in the study area.

Keywords: Women, Participation, Assessment, Benefits, Farm and Yam

Introduction

There are at least 500 million women all over the world who live in rural areas and depend on agriculture for their livelihoods (Maria, 2013). Agriculture has always played an important role in the history of any country representing over 30% of GDP and two thirds of the workforce in developing countries (Maria, 2013). However, Nigeria has a great potential to become the food basket of the West Africa sub-region (FAO, 2003). Throughout history, men and women have had different responsibilities in agricultural production system and these differ from country to country or society to society. In many areas, activities relating to planting, weeding, processing and marketing of crop are the responsibilities of women while land clearing, ridging and mounds, planting of yam are men's activities as women were thought to be weak when compared to men (Nenna, 2014). Gradually, this trend began to change through the years as women proved their creative abilities and they are succeeding in various fields. In some parts of southern Nigeria, women are meant to do most of the work and have ownership of farms, in the middle belt region of Nigeria, women make ridges and mounds while in eastern Nigeria, it is certainly a job for men (Walebia, 2005). Ekong (2010) observed that in southern Nigeria, yam cultivation is considered as men's economic activity and a man's status was

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reckoned by the size of his yam barn. He further stated that women cultivated other crops and following the introduction of cassava by the Europeans, the men allowed women to add it to their specialty. Ajani *et al.* (2011) noted that women now cultivate and harvest some crops that were previously meant for men, such as harvesting of oil palm fruit, planting and harvesting of white yam, harvesting of tree crops such as mango, orange and pears and making of ridges and mounds. This implies that most of the traditional beliefs regarded as sacred are gradually fading away. Women's contribution to Agricultural work with their husbands is important regardless of the type of work performed and the efforts exerted. Women play an important role in Agriculture and their roles cannot be disregarded or overlooked because they hold a significant proportion of agricultural labour force constituting an average of 43 percent in developing countries (Maria, 2013). In many part of the world, there is an increasing trend towards what is termed feminization of agriculture. The feminization is occurring even where it goes against the cultural norms (Dinye, 2003). As young men migrate to the city in search of employment, more women are working in the fields and more households are headed by women. Men are becoming more and more absent from farms in rural areas. Also, as men's participation in agricultural activities decline, the role of women in Agricultural production becomes even more dominant LEISA, (2002). This has made women to be involved in all facets of agricultural production. Majority of women all over the world, reside in the rural areas, especially in developing countries where they perform increasingly indispensable roles in agricultural and national development (Akpabio, 2005). Hence this study tends to find out the effects of women's participation on yam production in Paikoro Local Government area of Niger State. Specifically, this study sought to;

i. describe the socio-economic characteristics of women farmers in the study area
ii. identify the benefit derived by women from participating in yam production
iii. assess the level of women's participation in yam production
iv. identify the factors influencing women's participation in yam production in the study area
v. identify the constraints faced by women in participating in yam production in the study area

Methodology

This study was carried out in Paikoro Local Government Area of Niger State. The Local Government is located in Southern Guinea Savannah ecological zone of Nigeria. Selections of Agricultural Zone II and consequently Paikoro L.G.A were purposive due to the large scale production of yam in the areas. The respondents were selected using a 4 stage random sampling technique. A summary of the selection procedure is presented in Table 1

Data were collected with the use of questionnaire coupled with interview schedule. Data collected includes information on socio economic characteristics (age, marital status, household size, farm size, income, years of farming experience, education and distance to the farm). Also the benefit derived from yam production, the level of their participation in yam production activities and the constraints faced by the women farmers. The data collected were analyzed using descriptive statistic and ordinary least square (OLS) regression analysis. The model is implicitly specified as follows:

$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7)$

The explicit form of the OLS model is given as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + e$$

Where;

Y = Women participation in farm level yam operations (measured using the yam participation activities index)
X_1 = Age (years)
X_2 = Household size (number)
X_3 = Education (years)
X_4 = Experience (years)
X_5 = Farm size (hectare)
X_6 = Income (naira)
X_7 = Distance to farm (kilometers)
α = constant
$\beta_1 - \beta_7$ = coefficients of the independent variables

$X_6 - X_7$ = independent variables
e = error term

Results and Discussion

Data in Table 2 showed that 27.3% of the respondents were between the ages of 31 and 40 and this implied that majority of the women farmers belong to the active age group and are energetic enough to take up responsibilities in their farms. This is in accordance with (Abdulhameed*et al*., 2015) who observed that it is at active age that farmers can carry out the physical requirements of farm activities. Married women have more responsibility and this could account for their high participation in farming activities as 76.9% of the samples were married. This is in agreement with Deolu (2012) which revealed that majority of the yam farmers in Niger state are married and usually makes effort in terms of participation in farm activities so as to enable them generate more food and income to meet their domestic requirements. Morealso 54.5% of the respondents had a household size between 6 to 10 people. This implied that the respondents had small household size which is in disagreement with Nnena (2014) who reported that large household size is a characteristic of many rural areas especially where it is the determinants of wealth and easiest type of labour available. Table 2 showed it was also found that 33.1% had Quranic education. The result also showed that the women farmers had low level of education, low adoption of new technology hence low yield. Education plays a formidable role in adoption of new technologies (Onyenweaku and Nwaru, 2005). About 50.4% of the respondents had less than 11 years of farming experience, this implied that more of the women farmers had low years of farming experience. This is probably because yam being a cash crop was more of a male crop until recently when women began to get involved (Ojo*et al*., 2012). Personal savings (62.8%) was the major source of finance, this implied that majority of the respondents used their personal savings for yam cultivation and they have no access to credit. This is in agreement with Zaknayiba (2012) who discovered in his study that majority of yam farmers did not have access to credit in the study area.It was further observed that 64.5% of the respondents had farm size less than 4 hectares. This implied that the women farmers had small farm size which indicated the subsistence level of farming. It was pointed out by researchers such as Ibeto (1999) that women are perceived to be less capable of farming their allocations despite the smallness. Similarly, it was also observed that majority (64.5%) of the respondents had income of less than ₦40,000. This implied that most of the farmers had low income level. This is in agreement with Abdulhameed *et al*. (2015) who observed that majority of female farmers had lower level of income which could affect their participation in yam production because the more the income of farmers the more the production and purchase inputs and other technology that will improve their productivity. It was discovered that 47.1% of the respondents had distance of less than 11km to the farm, this may imply that the longer the distance to the farm the lower their participation in farming activities. This is probably because women as mothers needed to have farms close to their homes to enhance their domestic responsibilities (Ojo *et al*., 2012)

Benefits derived from participating in yam production

The result from Table 3 shows that 100% had increase in income and increase in food production. This implies that they will have the opportunity to expand their farm size and they will have adequate food supply. Furthermore, 99.2% had control over house hold expenses. This implied that the women do not depend entirely on their husbands for all household expenses. More also 91.7% had positive attitude towards agriculture as a result of participation in yam production. This implied that they now see agriculture in a new light. Furthermore, 91.7% said there is an improvement in their nutritional status which might suggest that they may not suffer from malnutrition. Additionally, 96.7% of the respondents felt they were food assure. This implied they are not bothered about shortage of food. About 81.0% had improved knowledge about agriculture. Table 3 implying that more awareness about agriculture and agricultural skills have been improved. This is not in agreement with the findings of Nahanga *et al*. (2014) who discovered that food security, income generation,

employment generation and land security are the major benefits derived from yam production.

Level of women's participation in farm level operations

Table 4 shows that women participated highly in majority of farm operations, with the exception of ridging, fertilizer application and pesticide application, in which the women had low participation. Low participation in ridging could be as a result of the very tedious nature of the operation while low participation in fertilizer and pesticide application could be as a result of the inability of the women farmers to purchase them due to their high cost, and this is in agreement with Abdulhameed *et al.* (2015).

Factors influencing women's participation in farm level operation in the study area

In Table 5, the t-values for X_1 and X_3 which are 0.76 and 1.40 are greater than 0.05 level of significance, this indicated that the effect of age and level of education are not significant factors influencing women's participation in farm level operations on yam production. This is in line with Abdulhameed *et al.* (2015) who discovered that the age of the farmers had no significant effect on their participation in yam production. The Table also shows that the level of experience is significant at 0.01 level of significance which indicates that the higher their experiences the higher the level of women's participation in yam production. The results further showed that the t-values for farm size is significantat 0.05, indicating that the larger the farm sizes, the higher the level of women participation. This collaborates with the findings of Abdulhameed *et al.* (2015) that farm size had a significant influence on women's participation in yam production X_2 and X_6 are also significant at 0.05, which implied they also had a positive effect on women's participation in farm level operation on yam production. By implication, the higher the household size, farm size and the income the higher the level of women's participation in farm level operations. Table 5 also revealed that distance(X_7) has a negative significant effect on women's participation. This implied that the higher the distance between the house and the farm, the lower the level of participation. This corroborated the findings of Ezeibe (2010) that women whose residences are very far to the farm are less likely to participate in cultivation. It may be due to the fact that traveling long distances will reduce the net energy required to do the farm work.

Constraint faced by the respondents

Table 6 revealed that the major constraints faced by the female farmers according to the order of ranking were; lack of access to farm inputs, inadequate capital, land acquisition problem and lack of access to fund (1st, 2nd, 3rd and 4th). Lack of access to farm inputs suggests that crude tools were used by the women farmers and this affects their productivity. Inadequate capital implied that the women farmers lack sufficient capital to carry out yam production on a large scale. Land acquisition problems also suggest that the respondents were unable to acquire large plots of land which reduces the size of land cultivated and subsequently their productivity. Lack of access to credit impedes access to inputs like fertilizer, pesticides, yam setts, and staking materials (Ojo *et.al.*, 2012).

High cost of farm inputs, lack of processing facilities, problem of religious beliefs, political problem and inadequate storage facilities ranking 5th, 6th,7th,8th, 9th respectively are less constraints but affect the women farmers in one way or the other. It could be said then that all these farm production constraints identified affected productive capabilities of the respondents in participation in yam production. This agrees with Nzeuzor (2002) who reported that farm constraint affects productive abilities of women farmers.

Conclusion

It could be concluded that more young women are involved in yam production and personal savings were their major sources of income. Morealso increase in income was one of the major benefits women derive in yam production. Furthermore, increase in farm size can lead to increase in women participation in yam production while on the other hand increase in distance from home to farm can discourage women from participating in yam production. The study therefore recommended that land acquisition policy that will favour women farmers should be formulated

by the government. The farmers should be encouraged by extension agents to form farmers' associations/co-operatives in order to pull efforts together and assist one another to collectively gain access to resources such as capital and farm machineries needed to increase their productivity. Extension agents should also women introduce adult education, extension training and follow up programmes tackle illiteracy level. Lastly government should subsidize inputs such as fertilizers, pesticide and cost of hiring tractors for the farmers as these can also increase their productivity

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Table 1. Format of sampling procedure

Selected Zone	Selected Local Government Area	Communities	Sampling frame (N)	Sample Farmers
Zone II	Paikoro	Kafinkoro	215	43
		Paiko central	183	36
		Kwagana	70	14
		Jere.	143	28
	Total	4	801	121

Table 2. Socio-economic characteristics of respondents in the study area

Variables	Frequency	Percent (%)	Mean
Age group			38
<21	11	9.3	
21-30	29	24.0	
31-40	33	27.3	
41-50	26	21.5	
51-60	12	9.9	
>70	10	8.3	
Marital status			
Single	19	11.6	
Married	93	76.9	
Separated	8	6.6	
Divorced	3	2.5	
Widowed	3	2.5	
Household size			7
<6	45	37.2	
6-10	66	54.5	
>15	10	8.3	
Level of Education			
Quranic	40	33.1	
Adult	13	10.7	
Primary	30	24.8	
Secondary	19	15.7	
Tertiary	19	15.7	
Farming Experience			13
<11	61	50.4	
11-20	40	33.1	
21-30	15	12.4	
31-40	4	3.3	
>40	1	0.8	
Sources of Capital			
Friends	26	21.5	
Personal savings	76	62.8	
Community Based Organization	19	15.7	
Farm size			2
<3	78	64.5	
3-5	41	33.9	
>5	2	1.7	
Estimated Income (₦)			41242.88
<40,000	78	64.5	
40,001-80,000	32	33.9	
80,001-120,000	6	5.0	
>120,000	5	4.1	
Distance to farm(Km)			13.93
<11	57	47.7	
11-20	50	41.3	
21-30	14	11.6	
Total	120	100	

Source: Field Survey, 2017

Table 3. Benefits derived from participation in yam production

Benefits	Frequency	Percent (%)
Increase in income	121	100
Increase in food production	121	100
Control over household expenses	120	99.2
Positive attitude towards agriculture	111	91.7
Improve nutritional status	112	92.6
Enhancement of food security	117	96.7
Improved knowledge of agriculture	98	81.0

Source: Field Survey, 2017 *Multiple responses recorded

Table 4.Level of women's participation in farm level operations

Farm level operations	Frequencies			Sum	Mean	Remark
	High	Moderate	Low			
Land clearing	52(156)	24(28)	45(45)	249	2.06	High
Ridging	1(3)	30(60)	90(90)	153	1.26	Low
Planting	59(177)	22(44)	40(40)	261	2.16	High
Weeding	48(129)	29(58)	44(44)	246	2.03	High
Fertilizer application	-	24(48)	97(97)	145	1.20	Low
Pesticide application	5(15)	15(30)	101(101)	146	1.21	Low
Staking of yams	59(177)	33(66)	29(29)	272	2.25	High
Harvesting	57(117)	47(94)	17(17)	282	2.53	High
Yam storage	75(225)	33(66)	13(13)	304	2.51	High
Processing	40(120)	53(106)	28(28)	254	2.10	High
Marketing	46(138)	33(66)	42(42)	246	2.03	High

Source: Field Survey, 2017

Table 5.Ordinary Least Square Regression coefficients for factors influencing women's participation in farm level operations in yam production.

Variables	Coefficients	Standard error	t-value	p>|t|
Constant	0.365	.1298035	2.81***	0.000
Age(X_1)	0.003	.0036717	0.760	0.449
Household(X_2)	0.371	.0142619	2.60***	0.010
Education(X_3)	0.008	.0054662	1.40	0.163
Experience(X_4)	0.009	.005298	1.73*	0.087
Farm size(X_5)	0.409	.0543474	7.53***	0.000
Income(X_6)	0.000	.219e-106	4.70***	0.000
Distance(X_7)	-0.014	.002898	-3.59***	0.000
F(7, 113)			63.63*	
R-squared			0.7976	
Adjusted R-squared			0.7851	

Source: Field Survey, 2017 *** Significant at 5% *Significant at 1%

Table 6.Constraints faced by the respondents

Constraints	Frequency	Percent (%)	Ranking
Inadequate farm inputs	117	96.7	1st
Inadequate capital	115	95.0	2nd
Land acquisition problem	109	90.1	3rd
Lack of access to credit	104	88.4	4th
High cost of farm inputs	106	87.6	5th
Lack of processing facilities	106	87.6	6th
Problem of religious beliefs	93	76.9	7th
Political problem	90	74.4	8th
Problem of storage	62	51.2	9th

Source: Field Survey, 2017 *Multiple responses recorded