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Analysis of Women's Participation in Agriculture in Selected States in Niger Delta, Nigeria

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ABSTRACT

Women's significant number in the labour market and their productive activities, particularly in agriculture makes them a force to be reckoned with and can empower them in the overall economic development of their nations. However, very few studies relating to the level of women's participation in agriculture can be found in the literature. Therefore, this study examined the analysis of women's participation in agriculture in some selected states in the Niger Delta Region of Nigeria with a view to considering the rural women in fishing and crop production. This paper utilized primary data collected from 349 rural women across 5 states in the Niger Delta region of Nigeria. Relevant data were gathered with the help of a structured interview schedule. The analysis of the data was done, utilizing descriptive and inferential statistics. Results of participation showed a high level of participation for fishers. The women are responsible for completing more than half of the task in their fishing operations. The one way ANOVA analysis of the level of participation in fishing across the States showed significant variation in the level of participation of women in fishing ($F=6.915$; $p=0.000$). Similarly, the level of participation of women in crop production showed that women were responsible for completing half the task in their farm operations. Results of the one way ANOVA also revealed significant variation ($F=7.721$; $p = 0.001$) in the level of participation across the States. This study, therefore, recommended that the planning and implementation process of policies should consider geographical variations in the involvement of women in agricultural productions. Thus, generalizations from one location to another may be concealing efforts of participants that need to be encouraged and preventing them from being considered as beneficiaries of opportunities that may accrue. Women that actively partake in agricultural production should be given proper attention.

Keywords: Women, Participation level, Rural, Agriculture, Niger Delta,

INTRODUCTION

More women are involved in agriculture than men in Sub-Saharan African (SSA) countries (Ogunlela & Mukhtar, 2009). Women account for 60-80% of the agricultural labour force in Nigeria, depending on the region; they account for the production of two-thirds of the food crops (Action aid, 2015).In Ondo State, about 80% of the food being consumed is produced and processed by rural women (Afolabi, 2008). 76% of women from Oyo and Bauchi States are actively involved in farming activities or working in farms belonging to their husbands (Yahaya, 2002, cited in Fabiyi, Danladi, Akande &Mahmood, 2007).

Despite this, it is known that men take farm management decisions. Unfortunately, female farmers are neglected, especially with regard to deciding and influencing agricultural policies. Such policies, which are geared towards increasing food production and security, neglect women's role in the production and decision-making process within the household (Ogunlela & Mukhtar, 2009). Rahman (2008) and Damisa and Yohanna (2007) are of opinion that, although it is of common knowledge that women are key elements in agricultural production in Nigeria, their contribution in the decision-making process in agriculture is not significant.

Women participate in the development of local and national markets. They intensively participate in farming and the processing of farm products, in addition to their domestic and reproductive functions (Fabiyi *et al.,* 2007). However; factors militating against women in their involvement in agricultural production are numerous, ranging from socio-cultural to economic, as well as changing within and between regions. The greatest percentage of rural women all over the world are confronted with poor health and work conditions, limited access to education, insecure employment and low income. This is as a result of problems related to land ownership, access and control of livelihood assets (like land, water, energy, credit, education and labour), that has severely affected women's production (Shuaibu, 2011, cited in Abdullahi *et al.,* 2012) leading to women taking poor decisions in respect of agricultural operation choices (Abdullahi *et al*., 2012). Other factors include the declining support by governments for smallholder farms and the redistribution of economic resources in favour of large agro-enterprises, which increase risks related to natural disasters and environmental changes (Saquina, 2013).

If women are backed to produce additional food and take control of agricultural produce and to have a vocal voice in the home, where food is shared or distributed and consumed; families and the wider society will so benefit from this (IDS, 2012). Bryson, (1981, cited in Doss, 1999) states that women's role in agriculture backed past development but that the failure to accord recognition to enhance their activities is contributing to recent problems with food supply in Sub Saharan Africa. Recognizing that women are prominent in agriculture and food security but are accorded little or no opportunity to make necessary contributions to development policies; this study is necessary to elucidate a potential opportunity to improve the lives of rural people by showing the unique circumstances and key position of women as well as their problems and needs that will form a bases of a proper development programme. In this paper, the significant variations in the level of participation of women in various agricultural activities across the study area were ascertained.

MATERIALS AND METHODS

This research consists of households of the Ijaw ethnic extractions. The Ijaw people have communities in six States in Nigeria. These include: are Akwa Ibom, Rivers, Bayelsa, Delta, Edo and Ondo States (Ndimele, Kari & Avuwo, 2009; Ikporukpo & Akpoghomeh, 2009). These States are located within the Niger Delta region of Nigeria. The area lies within latitudes 4^0 0`N and $7^0$0`N of the equator and longitudes 4^0 0'E and 8^0 0`E of the Greenwich meridian. The region is bounded at the south by the Atlantic Ocean (Figure 1).

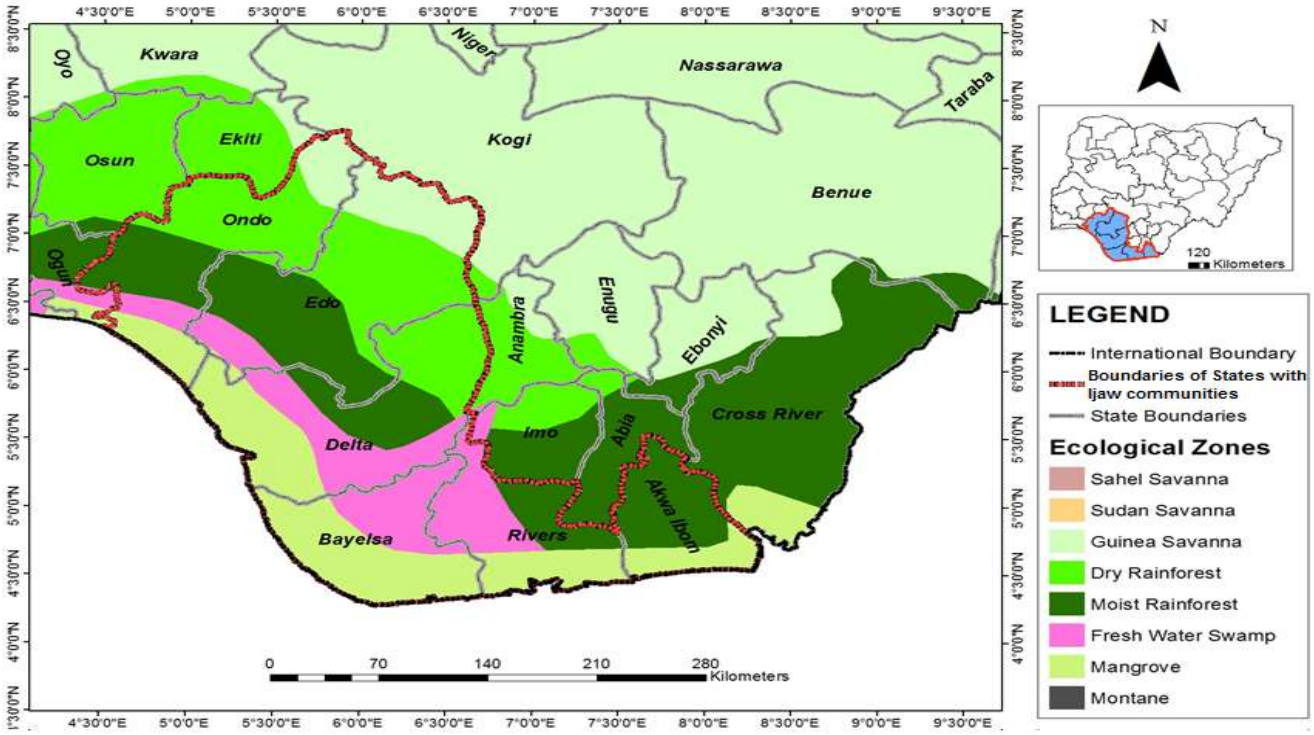

Figure 1: The study area showing Ondo, Edo, Delta, Bayelsa, Rivers and Akwa Ibom States.

The Mangrove forest and coastal zone and the Freshwater Swamp forest zone are the two key ecological zones in the region. The major types of soil in the mangrove forest and coastal zone are the acid sulphate, silty clay, peat (Chikoko) and clay loam soils (Abere & Ekeke, 2011). The land here is not extensively cultivated for farming purposes (NDDC, 2006). The mangrove region forms a vegetation belt 15 to 45km wide along the coast. The freshwater swamp forest zone is good for farming and fishing activities. It is characterized by seasonal floods during which, huge portions of the forest are inundated. The flood reduces the farming season. However, the flood deposits enable annual cropping without bush fallow (NDDC, 2006). The soil types are peat, clay, silt, shale and sand (Igu & Marchant, 2017).

The population of this study consists of women fishers and crop producers in rural households, who live in Ijaw villages, located in local government areas (LGAs) within Akwa Ibom, Rivers, Bayelsa, Delta, Edo and Ondo States. For the purpose of this study, only villages that fall within LGAs that are predominantly of Ijaw extraction make up the study population. Therefore, the population consists of rural villages from 22 LGAs in 5 States in the Niger Delta region of Nigeria. These LGAs are predominantly occupied by the Ijaw people. To determine the population of the study, the 1991census data was utilized. The most current census data for 2006 only have population figures for LGAs, excluding details for localities in various LGAs in Nigeria. The population of only rural villages in the 22 LGAs (of the 5 States) was projected to determine the 2017 population of the study area. LGA headquarters and community's population figures of 20000 and above were not included. The 2017 projected population are as follows: Akwa Ibom State 93400, Rivers State 961, 577, Bayelsa State 1, 630,071, Delta State 481,772 and Ondo State 209350. The total population of the study area is 3, 376,170. Thus, there are 562,695 households (using the average household size of 6).

The 22 LGAs in 5 States will make up the sampling population: Eastern Obolo and Ibeno in Akwa Ibom, Asari-toru, Akuku-toru, Degema, Okrika, Ogu/Bolo, Bonny. Opobo/Nkoro and Andoni LGAs in Rivers State; Southern- Ijaw, Kolokuma/Opokuma, Sagbama, Yenegoa, Brass,

Nembe, Ekeremor and Ogbia LGAs in Bayelsa State; Bomadi, Burutu and Patani LGAs in Delta State and Ese-Odo LGA in Ondo State. A simple random sampling technique was used to select the sample. To ascertain a sample size of 400 from the 562,695 households in the study population, 2 villages from each LGA were randomly selected, giving a total of 44 villages. Thereafter, 400 households were selected proportionately across the villages, based on the number of households in each village.

A structured interview schedule was administered by trained enumerators to 400 women in 400 households of 44 rural Ijaw villages. Only 349 schedules were deemed useful for the analysis. Data for fishing was collected from 14 LGAs that fell largely within the Mangrove Forest and Coastal zone while data for crop production was collected from 8 LGA that fell within the freshwater swamp zone. This is occasioned by the fact that lands in the mangrove forest and coastal zone is not widely converted for crop production purposes. On the other hand, land in the freshwater zone is commonly cultivated for crop production and is conducive for crop production (NDDC, 2006).

Data collected was analysed using simple percentages and cross tabulation. One hypothesis was tested with the aid of one way ANOVA test, using the Statistical Package for Social Scientists (SPSS) software 22.0 version. The test compared the level of participation of women in agriculture across the various States of the study area. The participation level of women in various tasks in their operation was ascertained with data concerning the level of work done personally in those operations. Women were asked to indicate the amount of work they do in each agricultural activity. Each level of actual work done was scored as follows none of the work- 0, less than half of the work -1, more than half of the work -3 and all the work – 4. Fishing was categorized into five major activities; respondents could score no higher than 20 points. Crop production had nine activities. With a ceiling score of 4 points per activity, the maximum which respondent could score is 45. Mean weighted score of the respondents' work done was also calculated across States and attributed to respondents as their level of participation in agriculture. This was adapted from the work of Chayal *et al.* (2010) who measured the participation of women in agriculture in the Bundy district of Rajasthan, India. Mean weighted score of the respondents' work done was also calculated across States in agriculture using participation and non-participation of women in activities relating to crop and five levels of work done; least, less than half, more than half, major and complete.

RESULT AND DISCUSSION

Participation of Women in Fishing and Crop Production

The analysis in Figure 2 shows that over 70% of fishers in every State participate in all fishing activities. In Akwa Ibom the minimum participation is in sorting, with 93.8% of the fishers participating. In Rivers State, 71.5% of the fishers participate in sorting. This is the least participating rate in any activity in the State and any other State. It goes up to 80.5% in fish capture. In Bayelsa State, minimum participation rate is 93.6% in processing. In Delta State, all the fishers (100%) participate in every activity. In fishing from boat paddling, fish capture to sales (marketing), over 80% of the women participate. This is dissimilar to the assertion that women in fisheries are more involved in the pre-fishing and post fishing activities (FAO, 2014).

Participation analysis in crop production activities in figure 3 showed that in Bayelsa State, participation is lowest in pest/disease control (40.9%), followed by land clearing (77.5%) and highest in sales (100%). In Delta State, participation is lowest in pest/disease control (31.4%) followed by land clearing (58.8%) and highest in sales (100%). In Ondo State participation is lowest in land clearing (30.4%) and highest in processing and sales with 91.3%. thus, more fishers participate in all their activities than the farmers do across the State. farmers are generally not very involved in land clearing and pest/disease control.

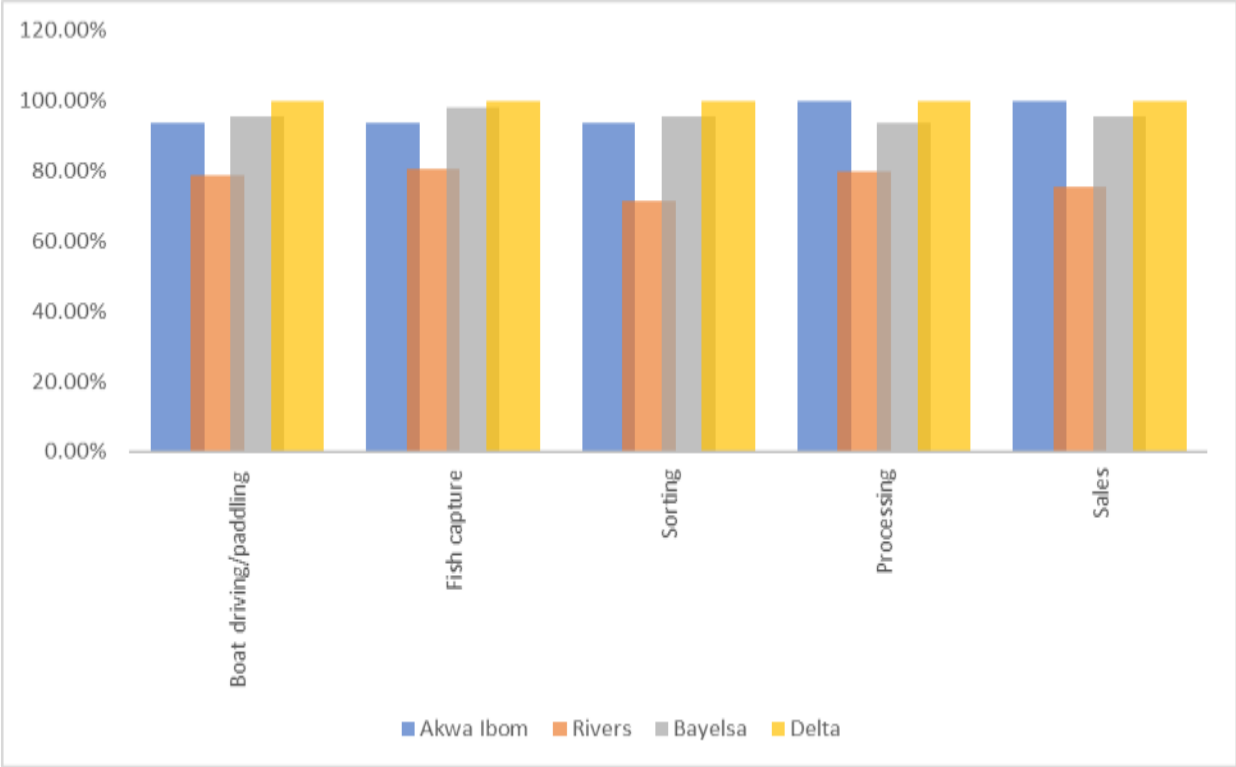

Figure 2: Participation of women in fishing activities

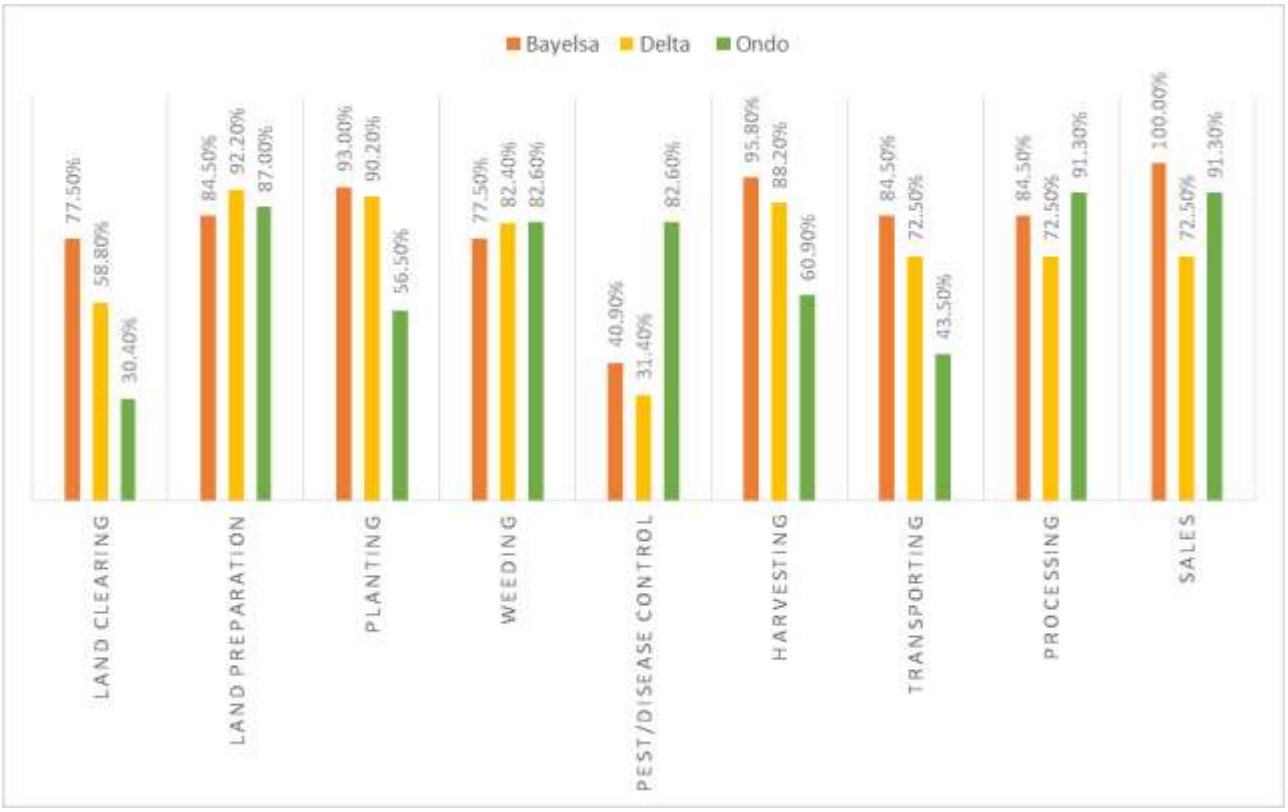

Figure 3: Participation of women in Crop production activities

Work Done Per State by Women Participating in Fishing and Crop Production

Table 1 shows the amount of work done by respondents in fishing/Crop production activities. For fishing activities, in Akwa Ibom State, processing and sales are activities completely done by the respondents (4.0). They do more than of the work in boat paddling/driving (3.38), fish capture (2.81) and sorting (2.94). In Rivers State, the respondents do more than half of the work in boat paddling/driving (2.81), fish capture (2.82), sorting (2.5), processing (2.64) and sales (2.61). In Bayelsa State, they do more half of the work in sorting (2.79) and sales (2.5). They do half the work in boat paddling/driving (2.0), fish capture (1.98) and processing (1.94). In Delta State, the respondents do more than half of the work in all the fishing activities. Overall mean scores in for fishing in the various States show that women do more than half of the work in the various activities, except in Bayelsa State where they do about half of the work (2.24).

For Crop production operations, respondents in Bayelsa State do more than half of the work in sales (2.94) and about half of the work in all other activities except in Pest/disease control (1.07), where they do less than half of the work. In Delta State, the respondents do more than half the work in sales (3.14) and about half of the work in other activities except in land clearing (0.8) and Pest/disease control (0.67). In Ondo State, the respondents do more than half of the work in sales (2.96) and about half of the work in Pest/disease control (2.3), land preparation, weeding and processing (1.61). They do less than half the work in land clearing (0.52), planting (1.04), harvesting (0.91) and transportation (0.74). This agrees in part with Sahel Capital Limited (2014), who opined that women farmers in Nigeria are engaged mainly in planting, weeding, harvest, processing and sales of farm produce but in most cases the land clearing is entirely left to men. Here the women do part of the land clearing as well especially in Bayelsa State where half of the task of land clearing is carried by the women.

Table 1: Amount of work done (mean weighted score) by States

Activities	Akwa Ibom	Rivers	Bayelsa	Delta	Ondo	Overall
Fishing Activities						
Boat driving/paddling	3.38	2.81	2.00	3.33		2.72
Fish capture	2.81	2.82	1.98	3.11		2.65
Sorting	2.94	2.50	2.79	3.06		2.65
Processing	4.0	2,64	1.94	3.06		2.62
Sales	4.0	2.61	2.50	3.06		2.73
Overall	3.43	2.68	2.24	3.12		2.67
Crop production Activities						
Land clearing			1.59	0.80	0.52	1.14
Land preparation			1.89	2.02	1.65	1.9
Planting			2.37	1.96	1.04	2.01
Weeding			1.83	1.82	1.61	1.79
Pest/disease control			1.07	0.67	2.30	1.12
Harvesting			2.41	1.78	0.91	1.95
Transporting			2.37	1.73	0.74	1.88
Processing			2.13	2.10	1.61	2.03
Sales			2.96	3.14	2.96	3.02
overall work done			2.07	1.78	1.48	1.87

Variation in the Level of Participation of Women in Fishing and Crop Production in Niger Delta

Table 2 shows the descriptive Statistics for participation in fishing across states. The mean level of participation across States shows that Akwa Ibom has the highest level of participation (3.43). The state also has the lowest standard deviation (0.55). Thus, the level of participation is very generally high among women in the State. This followed closely by Delta State with a mean score of 3.11 and standard deviation of 0.94. Standard deviation across the State shows that the level of participation of women in the various states is fairly concentrated around the mean. Thus most women perform more than half of the tasks in their fishing operations.

The ANOVA results in table 3, revealed significant variations (F=6.92, p= 0.00) in the level of participation of women in fishing across States. The Tukey post hoc results in table 4, showed a significant difference in the level of participation in Rivers (2.67 ± 1.1, p=0.03) and Bayelsa States (2.24 ± 0.91, p= 0.00) when compared to Akwa Ibom (3.43 ± 0.55). It showed no significant difference in level of participation between Akwa Ibom (3.43 ± 0.55, p= 0.8) and Delta States (3.11 ± 0.94, p= 0.8). It also showed that level of participation as significantly different between Delta State and Bayelsa State (2.24 ± 0.91, p= 0.01). However, between Rivers and Delta States (p= 0.32) as well as Rivers and Bayelsa States (p= 0.07) there were no significant differences in the level of participation of women in agriculture.

Table 2: Descriptive Statistics for participation in fishing across states

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Akwa Ibom	16	3.4250	0.55076	0.13769	3.1315	3.7185	1.60	4.00
Rivers	123	2.6715	1.09638	0.09886	2.4758	2.8672	0.00	4.00
Bayelsa	47	2.2426	0.91074	0.13285	1.9751	2.5100	1.00	4.00
Delta	18	3.1111	0.94364	0.22242	2.6418	3.5804	1.80	4.00
Total	204	2.6706	1.05444	0.07383	2.5250	2.8162	0.00	4.00

Table 3: Results of one way ANOVA for participation in fishing across states

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21.210	3	7.070	6.915	0.000
Within Groups	204.493	200	1.022		
Total	225.704	203			

Table 4: Tukey HSD post hoc results for the level of participation in fishing

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Akwa Ibom	Rivers	0.75346*	0.26873	0.028	0.0572	1.4497
	Bayelsa	1.18245*	0.29268	0.000	0.4242	1.9407
	Delta	0.31389	0.34743	0.803	-0.5862	1.2140
Rivers	Akwa Ibom	-0.75346*	0.26873	0.028	-1.4497	-0.0572
	Bayelsa	0.42899	0.17340	0.067	-0.0202	0.8782
	Delta	-0.43957	0.25518	0.315	-1.1007	0.2215
Bayelsa	Akwa Ibom	-1.18245*	0.29268	0.000	-1.9407	-0.4242
	Rivers	-0.42899	0.17340	0.067	-0.8782	0.0202
	Delta	-0.86856*	0.28028	0.012	-1.5947	-0.1424
Delta	Akwa Ibom	-0.31389	0.34743	0.803	-1.2140	0.5862
	Rivers	0.43957	0.25518	0.315	-0.2215	1.1007
	Bayelsa	0.86856*	0.28028	0.012	0.1424	1.5947

Table 5 shows the descriptive Statistics for participation in crop production across states. Bayelsa State has the highest level of participation with a mean score of 2.07 and a standard deviation of 0.66. Thus women are generally responsible for half of the work in their farm operations in Bayelsa State. This is followed by participation level Delta State with a mean score of 1.78 and a standard deviation of 0.65. Ondo State has the lowest level of participation with a mean score of 1.47 and a standard deviation of 0.72. The Standard deviation across the State shows that the level of participation of women in the various states is fairly concentrated around the mean. Thus women perform little less than half of the tasks in their crop production operations except in Bayelsa State where the women perform half the task.

The ANOVA results in table 6, revealed significant variations (F=6.83, p=0.001) in the level of participation of women in crop production across States. The Tukey pos hoc results in table 7, showed that the level of participation was significantly different only in Ondo State (1.47 ± 0.72, p=0.001), when compared to Bayelsa State (2.07 ± 0.6.7, p= 0.001). It showed no significant difference in level of participation between Bayelsa (2.07 ± 0.6.7, p= 0.053) and Delta States (1.78 ± 0.65, p= 0.053) as well as between Delta and Ondo States (p= 0.154).

The analysis shows variations in women participation in agriculture exists within the ethnic region across geographically locations (State). This may be the result of certain environmental circumstances as well as disparities or changes in the value system within ethnic groups across space. According to SOFA team and Doss (2011), agriculture in developing countries is underperforming partly due to the fact that women who are viable resources in agriculture and rural households are overwhelmed with constraints that limit their output. Furthermore, many of these problems are social constructs. This means that women in different ethnic groups and geographical locations may have different experiences and thus varying contributions to agriculture. An ethnic group makes up a culturally homogeneous group which can have variations in local customs over extended geographic space (Adediran, 1994).

Furthermore, it is apparent that fishers do more work in their operation than farmers. Fishers overall average of work done is 2.67 which means they perform more than half of the entire work involved in their operation. Farmers have an overall average of 1.87 meaning that they do below half of the work. This could be attributed to the nature of the occupations. Fishers complete their circle of activities each time they go out to fish. The farm work is more labour intensive over an extended period of months. Thus, it is better to compare participation in the various occupations amongst folks with similar occupations.

Table 5: Descriptive Statistics for participation in crop production across states

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Bayelsa	71	2.0662	0.65877	0.07818	1.9103	2.2221	0.30	3.90
Delta	51	1.7804	0.64684	0.09058	1.5985	1.9623	0.30	3.40
Ondo	23	1.4696	0.72327	0.15081	1.1568	1.7823	0.00	2.70
Total	145	1.8710	0.69541	0.05775	1.7569	1.9852	0.00	3.90

Table 6: Results of one-way ANOVA for participation in crop production across states

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	6.830	2	3.415	7.721	0.001
Within Groups	62.808	142	0.442		
Total	69.638	144			

Table 7: Tukey HSD post hoc results for the level of participation in crop production

(I) State	(J) State	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Bayelsa	Delta	0.28581	0.12208	0.053	-0.0033	0.5749
	Ondo	0.59663*	0.15956	0.001	0.2187	0.9746
Delta	Bayelsa	-0.28581	0.12208	0.053	-0.5749	0.0033
	Ondo	0.31083	0.16704	0.154	-0.0848	0.7065
Ondo	Bayelsa	-0.59663*	0.15956	0.001	-0.9746	-0.2187
	Delta	-0.31083	0.16704	0.154	-0.7065	0.0848

*. The mean difference is significant at the 0.05 level.

CONCLUSION AND RECOMMENDATIONS

Women are active contributors to agriculture. They are actively involved in every fishing and crop production activity. However, their Level of participation varies between States. Generalizations from one location to another may be concealing efforts of participants that need to be encouraged and preventing them from being considered as beneficiaries of opportunities that may accrue. Based on findings arrived at in this study the study and the following recommendations are therefore suggested.

1. Males and females engaged in agriculture should be proportionally represented in the implementation process either by male-female ratio of agricultural labour in the regions or by male-female ratio of the total population of the area.
2. The ADP should ensure their Women in Agriculture (WIA) department of the ADP should well position to carry out their duties such as providing extension services and grouping women into active cooperatives
3. The first role of agriculture is to provide adequate food for an increasing population. During the implementation process, no State or local government area should be neglected. There should be concerted efforts to ensure that benefits of the process influence the economy of the rural areas especially.

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