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Differences in Female and Male Farmers' Participation in Arable Crop Production Activities in Ekiti State, Nigeria

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Abstract

This study assessed gender differences in farmers' participation in arable crop production activities in Ekiti State, Nigeria. A total of 144 arable crop farmers comprising of 72 male and 72 females were selected using a multi-stage sampling technique. Data were collected using a well-structured questionnaire and analysed using frequency and percentage, Mean statistics and linear regression. Results showed that factors that influenced the male's participation were age ($t=-6.090$) and household size ($t=3.529$) whereas only age ($t=-2.164$) influenced the female's participation in the process. Furthermore, a significant difference exists in the level of participation ($t=13.684$) and constraints faced ($t=-10.326$) by male and female farmers. The study deduced that male farmers participated more in arable crop Production activities than their female counterparts. Training aids should be tailored to meet the specific needs of female and male farmer

Keywords: Gender, arable crops, production activities

Introduction

Agriculture is a highly diversified enterprise worldwide, especially in the area of crop production which has come about through efforts to tackle increasing global hunger, food demand, low grain reserves and climate change (Renard and Tilman, 2019). This diversity typically means more work, activities and manpower demand, especially in Africa where farm operations are mostly subsistence in nature involving the use of rudimentary tools. According to Oni (2022), this variation in crop production activities is attributed to the soil and climatic conditions as well as the wide variety of crops cultivated across the different regions to meet nutritional needs. Crops such as cereals, root crops, fruits, vegetables, cash crops and oil crops which form food for local consumption and export commodities are all cultivated, managed and processed through different tasks and activities (Udemezue and Odia (2021). The various crop production activities engaged in by peasant farmers all through the cropping season on a yearly basis under different categories are generally referred to as arable farming (Ahmad, 2022).

According to Oluwaseun (2019), arable crops fall into different category and types such as maize, millet, sorghum, soya beans, cowpea, cassava, rice, groundnut and have unique production processes, task or activities that are required to produce them. Some of the crop production activities carried out in the African setting include land preparation such as clearing and tillage, planting, fertilizer application, weeding, irrigation, pest control, harvesting, processing and storage.

These activities require different energy level, skills, technical knowhow, tools and operating equipment to carry them out, therefore are assigned to different gender. Gender in Agriculture have become a continuously significant topic of discuss world over particularly in the area of crop production as more attention is being given to examine how the assigned roles of male and female for the different farm activities affects productivity in the sector. Farm activities which are considered as being labour intensive and require specialized skills are traditionally the male responsibilities including machine operation, use of heavy tools and other physical task which are energy demanding. These gender roles are not necessarily strictly conformed to and the motive behind these assigned gender roles vary from one community to another although FAO (2022), observed that the bulk of farm labour activities are often carried out by the female folks in most traditionally African settings especially among the peasant farmers while the male exercise more control over the land and financial resources. The implication is that the females are left to endure reduced limited access to farm resources, stereotyping, suffer unfair distribution of labour, social exclusion which negatively results to reduced agricultural productivity (Khachatryan and Peterson, 2018). These in one way or the other resonate with some of the observation in crop production activities of the different gender in South West Nigeria especially Ekiti State which is known for subsistence and commercial arable crop production. There is therefore need to ascertain these gender difference particularly for the state as government is beginning to look more to Agriculture so as to help guide policies on resource allocation for the different gender in a manner that would impact positively on agricultural development of the region. The broad objective of this study was to examine gender differences in arable crop production activities in Ekiti State while specifically the study:

1. determine the participation level of male and female farmers in arable crop production activities;
2. determine the factors influencing their participation in arable crop production activities; and
3. identify constraints faced by respondents in participating in arable crop production activities.

Hypotheses of the Study

The following hypotheses were used for the study:

H₀₁: There is no significant difference between constraints faced by males and females in arable crop production activities.

H₀₂: There is no significant difference between male and female participation levels in arable crop production activities.

Methodology

The study was conducted in Ekiti State. It lies between latitudes 7°15' and 8°51' north of the Equator and longitudes 40°51' and 50°451' east of the Greenwich

meridian. Over 75% of people in Ekiti State are employed or receive income from agriculture. Ekiti's agricultural produce includes cash crops such as cocoa, oil palm, kolanut, plantain, bananas, cashew, citrus, and timber, as well as arable/food crops such as rice, yam, cassava, maize, and cowpea.

The population size of the study comprises selected arable crop (yam, maize and cassava) farmers in Ekiti State.

Multi-stage sampling procedure was used in this study. The first stage involved random selection of 3 local government areas out of sixteen (16) Local Government Areas in Ekiti State. In the second stage, from each of the local governments selected, three (3) rural communities were randomly selected making nine (9) communities in the State. In the third stage, sixteen (16) farmers (8 males, 8 female farmers) were purposively selected (men and women who are arable crop farmers and own a farm) from each of the rural communities to make a total of One hundred and forty-four (144) respondents as the sample size for the study.

The study made use of primary data. Data were collected from the respondents using a structured questionnaire of both closed and open-ended questions to obtain relevant information on the objectives of the study. The analytical tools used were frequency and percentage, mean statistics and linear regression.

To determine the level of participation of males and females in arable crop production activities, production activities were provided for respondents to tick on a 3-point Likert-type scale and labelled as high = 3, medium = 2, low = 1.

Thereafter, an overall grand mean was calculated for all items on schedule. Any mean score equal to or greater than the grand mean is regarded as high participation while any mean score lower than the grand mean will be regarded as low participation.

To determine the factors influencing their participation in arable crop production activities by male and female respondents in the study area, farmers were asked to tick yes = 1, no = 0 from the list of possible factors influencing their participation in arable crop production activities.

Some possible problems faced by respondents in participating in arable crop production activities in the study area were listed for the respondents to tick on a 3-point Likert-type scale and labelled as major challenge =2, minor challenge = 1, Not a challenge =0. Thereafter, an overall grand mean was calculated for all items on schedule. The mean score greater than the grand mean was regarded as a major constraint while any mean score lower than the grand mean will be regarded as not a constraint.

Results and Discussion

Level of participation of male and female farmers in arable crop production activities

Table 1 shows that males' level of participation was high in arable crop production activities such as site selection (\bar{x} =3.00), sourcing for planting materials (\bar{x} =3.00), planting (\bar{x} =2.65), thinning & supplying (\bar{x} =2.75), staking (\bar{x} =2.89), bush clearing (\bar{x} =2.02), fertilizer application (\bar{x} =2.48), pesticide application (\bar{x} =2.44), mulching (\bar{x} =2.05), harvesting (\bar{x} =2.45) and transportation of produce (\bar{x} =2.20). However, the male respondents had low participation in stumping (\bar{x} =1.88), ridging (\bar{x} =1.81) and weeding (\bar{x} =1.97).

Furthermore, the result shows that the female respondents had high level of participation in only 7 out of 14 listed crop production activities such as site selection ($\bar{x}= 2.96$), sourcing of planting materials ($\bar{x}=2.93$), thinning & supplying ($\bar{x}=2.68$), planting ($\bar{x}=2.33$), fertilizer application ($\bar{x}=2.44$), harvesting ($\bar{x}=2.26$) and transportation of produce ($\bar{x}=2.31$) and low level of participation in crop production activities was recorded in weeding ($\bar{x}=1.82$), pesticide application ($\bar{x}=1.20$), mulching ($\bar{x}=1.50$), as well as staking ($\bar{x}=1.67$). Again, there was no participation in 3 activities such as bush clearing ($\bar{x}=0.0$), stumping ($\bar{x}=0.0$) and ridging ($\bar{x}=0.0$).

The result implies that male farmers had higher level of participation in arable crop production activities than the female farmers.

The results also reveal an overlap in some of the crop production activities participated and not participated in by farmers of both genders such as stumping and ridging which further shows that farmers (male and female) prefer to use hired labour to carry out crop production activities especially those activities that are labour intensive which they could not participate in which has been the norm within south western part of Nigeria. This means physical participation of farmers in crop production activities is merely a choice as they utilize their money to work for them in farm activities. This conforms to report of Shisler and Sbicca (2019) that the labour intensive nature of crop production activities is the reason behind farmer's use of persons with specialized skills to execute farm task that require handling heavy tools and expending energy.

Table 1: Level of participation of males and females in arable crop production activities

Activities	Male Level of Participation		Female Level of Participation	
	Mean	Std. Dev.	Mean	Std. Dev.
Site selection	3.00	0.000	2.96	0.201
Bush clearing	2.02	0.568	0.0	.
Stumping	1.88	0.806	0.0	.
Ridging	1.81	0.531	0.0	.
Source for or purchase of planting materials	3.00	0.000	2.93	0.256
Planting	2.65	0.481	2.33	0.605
Thinning & supplying	2.75	0.470	2.68	0.552
Weeding	1.97	0.550	1.82	0.613
Fertilizer application	2.48	0.580	2.44	0.527
Pesticides, Herbicides application	2.44	0.588	1.20	0.473
Mulching	2.05	0.602	1.50	0.535
Staking	2.89	0.359	1.67	0.500
Harvesting	2.45	0.529	2.26	0.650
Transport/upload/offload	2.20	0.440	2.31	0.664

Source: Field survey, 2022; Mean \geq 2.0

Factor influencing participation in arable crop production activities

The result of Table 2 shows that age ($t=-6.090$; $p \leq 0.05$) and household size ($t=3.529$; $p \leq 0.05$) were significant factors influencing male respondents' participation in arable crop production while only age ($t=-2.164$; $p \leq 0.05$) was significant for female respondents.

The negative regression coefficient in the results indicates that as the age of both male and female farmers increases, their level of participation in crop production activities is more likely to decrease over time. Furthermore, the result shows that as household size increases for the male farmers they are more likely to also increase their participation in crop production activities. This means that a high household size for the male farmers could cause them to engage more in crop farming activities to provide for the feeding of additional mouths and other financial needs of their family as household heads.

Table 2: Factors influencing participation in arable crop production activities

Socio-economic characteristics	Male			Female		
	Regression coefficient	Standard error	T – statistics	Regression coefficient	Standard error	T – statistics
Age	-0.785	4.046	-6.090*	-0.364	0.070	-2.164*
Household size	0.473	0.473	3.529*	-0.122	0.333	-1.223
Farming experience	0.069	0.120	0.491	-0.040	0.068	-0.297
Total farm size	-0.013	0.778	-0.110	0.086	1.392	0.780

Male- $R^2 = 0.450$, Adjusted $R^2 = -0.409$, F value = 10.811 *Significant

Female- $R^2 = 0.382$, Adjusted $R^2 = -0.335$, F value = 8.160 at 0.05 level of significance

Source: Field survey, 2022

Constraints faced by respondents in participating in arable crop production Activities

Table 3 shows that constraints faced by male respondents in their participation in arable crop production activities were inadequate/poor agricultural extension service ($\bar{x}=1.74$), lack of access to labour-saving devices ($\bar{x}=1.60$) and high cost of labour ($\bar{x}=1.54$).

The result further reveals that the major constraints for female respondents were inadequate training to handle most resources ($\bar{x}=1.96$), high cost of labour ($\bar{x}=1.96$), inadequate agricultural extension service ($\bar{x}=1.93$), inadequate information/awareness ($\bar{x}=1.93$), low household income ($\bar{x}=1.86$), high cost of agricultural assets and resources ($\bar{x}=1.85$), no rights to land an important resource ($\bar{x}=1.79$), capital intensive nature of technologies ($\bar{x}=1.79$), lack of access to labour saving devices ($\bar{x}=1.75$) access to farm tools and machines ($\bar{x}=1.60$), insufficient capital ($\bar{x}=1.50$), and poor credit ($\bar{x}=1.50$).

The above result shows that female farmers encounter more constraints that limits their participation in crop production activities more than the male farmers which in turn negatively affects their overall farm productivity. Majorly poor access to land, inadequate agricultural extension services and poor credit access all seriously impedes the female farmer from maximizing crop production opportunities and ultimately affects agricultural productivity of the nation. This finding conforms to report of Abiola et al. (2021) on factors that constitute a barrier to women in agriculture which are not climatic related but man-made constraints.

Table 3: Constraints faced by male and female farmers' participation in arable crop production activities

Constraints	Male		Female	
	Mean	Std. Dev.	Mean	Std. Dev.
Insufficient capital/fund	1.47	0.691	1.50	0.839
Bad government policies/Poor governance	1.17	0.475	1.28	0.451
Scarcity of resources such as farm input, planting materials, fertilizer	0.96	0.680	1.33	0.531
High cost of agricultural assets and resources	1.46	0.670	1.85	0.362
Influence of community value and norms	0.10	0.342	0.63	0.638
Inadequate information/awareness	1.47	0.581	1.93	0.256
No right to land as important resource	0.11	0.316	1.79	0.409
Low level of education/illiteracy	0.76	0.489	1.15	0.465
Low household income	1.29	0.659	1.86	0.348
Poor implementation of programmes to empower arable crop farmers	0.97	0.649	1.31	0.493
Inadequate training/capacity to handle most resources	1.46	0.627	1.96	0.201
Inadequate/poor agricultural Extension service	1.74	0.503	1.93	0.306
High cost of labour	1.54	0.691	1.96	0.201
Cultural belief	0.07	0.256	0.51	0.503
Natural disasters	0.68	0.470	0.92	0.366
Weather (Climate change and variability)	1.03	0.165	1.03	0.165
Insecurity	0.60	0.522	0.76	0.459
Access to farm tools and machines	1.40	0.643	1.60	0.548
Theft/ stealing	0.35	0.632	0.32	0.526
Capital intensive nature of technologies	1.49	0.581	1.79	0.409
Cattle invasion	0.36	0.589	0.38	0.542
Lack of access to labour saving devices	1.60	0.522	1.75	0.436
Poor feeder road	0.88	0.473	0.97	0.374
Lack of Basic amenities	0.35	0.535	0.18	0.422
Land Grabbing	0.18	0.454	1.00	0.336
Poor soil quality	0.60	0.522	1.24	0.459
Poor credit	1.21	0.821	1.50	0.822

Source: Field survey, 2022

Difference between Constraints faced by Male and Female in Arable Crop Production Activities

Result in Table 4 shows that there is a significant difference ($t=-10.326$) in the constraints faced by male and female in arable crop production activities within the study area at 5% level of significance. This implies that the more constraints faced by either of the gender, the less likely they are to participate or carry out arable crop production activities. This result agree with the finding of Ayanlere (2018) which indicate differences in the constraints encountered by the different gender in agricultural production which could be linked to cultural limitation such as the imposition of restrictions on the female in accessing production resources among others.

Table 4: Difference between constraints faced by male and female in arable crop production activities

	N	Df	Mean	Mean df	Standard Error	t-value
Male			25.278			
	144	142		-9.139	0.885	-10.326*
Female			34.417			

Source: Field survey, 2022 * Significant
N-Population df – difference

Difference between the level of participation of male and female in arable crop production activities

Table 5 reveals that there is a significant difference ($t=13.684$; $p\leq 0.05$) between level of participation of male and female in arable crop production activities.

This result contradicts the report of Gbemisola et al., (2015), who explained the gender differentials in agricultural production in Nigeria and concluded no significant gender difference exist in the southern part but only in the northern part of Nigeria. This twist could be explained by identifying limiting constraints to females' full participation in crop production activities especially that of land ownership which also restricts access to credits; a situation that still persists in the study area. This finding implies that there is a need to give attention not only to northern Nigeria about gender inequality but also to the south so as to eliminate these gender biases and inequalities that remain in certain areas within southern Nigeria for improved agricultural productivity.

Table 5: Difference between the level of participation of males and females in arable crop production activities

	N	Df	Mean	Mean df	Standard Error	t-value
Male			29.042			
	144	142		10.431	0.762	13.684*
Female			18.611			

Source: Field survey, 2022 * Significant

Conclusion and Recommendations

The differences in female and male farmers' participation in arable crop production activities in Ekiti State has revealed that there is low level of female participation in crop production activities compared to the male farmers. Age of the farmers was identified as a factor that influence male and female participation in crop production activities while household size was also identified for male. Female famers' participation in crop production is hampered by a number of significant constraints. The study identified that there was a significant difference in the constraints faced and the level of participation of male and female farmers in arable crop production activities in the study area.

There is therefore, a need for the Government to provide training aids and support that will be tailored to meet women's needs and provide extension services to help improve women's participation in crop production activities. Specific obstacles including lack of access to land, financing, and suitable working conditions should be addressed. Farmers should consider labour-saving mechanization and products to supplement human labour thereby reducing the rate of labour utilization, high cost of labour and drudgery.

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