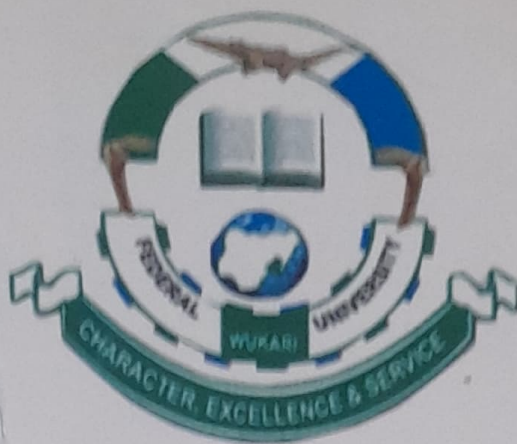


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**GENDER ANALYSIS OF LAND MANAGEMENT PRACTICES ADOPTED BY CROPPING
FARMERS IN NORTH-CENTRAL, NIGERIA**

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ABSTRACT

This study analyzed land management practices adopted by crop farmers in two selected states in North central, Nigeria on gender basis. Multistage sampling technique was used to select 302 respondents for the study. Structured questionnaire was used to collect data from the respondents. Analysis of variance (ANOVA) was used to test the significant difference in the level of adoption of land management practices by male and female respondents in the study area. Results showed that mean age of the male and female farmers were 49 and 44 years respectively. Majorities (92.1%) were male and married while 69.5 % were female. The mean size of cultivated land by male and female farmers was 1.5 and 1.1 hectares of land respectively. Although, low level of use was evident among the two genders, it was more pronounced among the female respondents. Both the male and female respondents were in the medium category of adopters of land management practices with 72.8% and 70.2% respectively. Significant differences ($P < 0.05$) existed among the gender in the practices of shifting cultivation, crop rotation, mixed cropping and tree planting. The study concluded that more female farmers were categorized in the lower adoption level than their male counterparts. The study, therefore, recommended that there should be more enlightenment by educating both gender on the right of an individual starting from childhood so that each gender will be given equal opportunity to survive and have equity towards production resources such as land in our communities

Keywords: Gender analysis, crop farmers, land management practices, Patterns, Adoption

1.0 INTRODUCTION

Nigeria is endowed with arable land. However, Adamade and Jackson (2014) reported that Nigeria has 98.3 million hectares of arable land mass out of which 72 percent has cultivation potentials but only 35 percent of the arable land is under actual cultivation. Food and Agricultural Organization (FAO, 2002) noted that throughout history, land has been recognized as a primary source of

wealth, social status and power employment opportunities in rural areas. Land is an increasingly scarce resource in urban areas. Fabiyi (2009) described land as a major resource for the livelihood of the poor. He opined that a typical villager recognizes land in its entirety. Land to a farmer is a home and work place and shares it with the entire family complex. Land is a major factor in agriculture where productive activities such as growing



crops, rearing of animals and establishment of farmstead are carried out. In other words, where there is no land there is no Agriculture. However, it is disturbing to note that in spite of the significant of soil productivity to ensuring sustained food and product supplied, the degree of land degradation is presently alarming, which is a great threat to subsistence of agricultural productivity in Nigeria Farming Communities (Aruleba, 2004). FAO (2002) had earlier reported that cultural, sociological and socio-economic factors strengthen the bias of policies in land access and tenure to have favored a particular gender. Even if a legal system foresees equal access to land, women face severe difficulties in realizing their legal rights, in part due to lack of awareness of their rights (Lawanson, 2010).

According to Kagwanja (2008), women in Africa contribute 70 percent of food production i.e. from the preparation of land for planting to the market for final consumption. Similarly, the Nigerian rural economy as well as its urban food security is largely sustained by rural women who are engaged in some pre-planting activities such as cutting of grasses, clearing of land, bush burning, making heaps and weeding they also perform as high as between 60 and 90% of the total farm task. (Ekong, 2003, Damisa *et al.*, 2007). In spite of the vital roles women play to enhance and sustain agriculture, they are still being deprived of owning land due to their 'gender' status. Their ability to gain access to land is often restricted by inheritance laws and customary rules that recognize only male. In most cases, women have only cultivation rights. For instance, it is the husband that gives a small portion of land for the wife to farm and it is he who decides for how long she can cultivate on such land. Due to the short term she is permitted to use the land, she grows food crops for the family while her husband may grow tree and cash crops on his farm. As a result, 'the gender gap' in land

acquisition and land management practices hinders women contribution to the agricultural sector and the achievement of broader economic and social development goals. Closing the 'gap' in land access and management practices would produce significant results in the society by the way of increase in agricultural productivity, poverty and hunger reduction and promotion of economic gains. The study therefore, analyzed land management practices adopted by crop farmers in North central zone, Nigeria on gender basis. Specifically, it described the socio-economic characteristics of the Male and Female respondents, identified land management practices of the farmers and also examined the level of adoption of land management practices of the respondents.

2.0 MATERIALS AND METHODS

The study was conducted in two selected States (Kogi and Kwara) in North central zone, Nigeria. A multistage sampling procedure was used in selecting respondents for the study. Kogi and Kwara states were purposively selected because of the similarities in their food and cash crops production Adofi *et al.* (2013). Twenty percent of the total Local Government Area (LGA) in each state was randomly selected making three (3) LGAs in Kwara State (Kwara state has 16 LGAs) (Irepodun, Ekiti and Asa LGA) and four LGAs in Kogi State (Kogi state has 21 LGAs) (Ijumu, Kaba-bunnu, Yagba East and Mopa LG) giving a total of seven LGA's altogether. From the sampling frame, a systematic sampling technique was employed to get a total of three hundred and two respondents (302) across the LGAs in both states. The respondents were stratified equally because the number of both registered male and female farmers were almost the same in each LGA. Descriptive statistics such as mean, percentages, frequency distribution were used to describe the



socioeconomic characteristics of respondents while analysis of variance (ANOVA) was used to analyze the significant difference in the level of adoption of land management practices between the two genders.

2.1 The Empirical model of ANOVA used in its linear form is presented as follows;

The linear model: $Y_{ij} = \mu + \tau_i + \epsilon_{ij}$

Where Y = Adoption of land management practices
where the treatment effects (τ_i) are fixed and

$$\sum \tau_i = \sum (Y_i - \mu) = 0.$$

Where Y = continuous response variable
 Y_{ij} = j th observation in the i th group
 $i = 1; 2; \dots; r$ levels of the adoption of two categories of farmers
 $j = 1; 2; \dots; n_i$ observations at adoption level in land management practices
 i

$$H_0: \tau_1 = \tau_2 = \dots = \tau_j = 0$$

$$H_1: \text{some } \tau_j$$

When H_0 is false, there is an additional component of variance in the experiment:

$$\tau \sum \frac{\tau_i}{j-1}$$

3.0 RESULTS AND DISCUSSION

Table 1 shows that the mean age of the male respondents was 49 years while the mean age of the female respondents was 44 years. This implies that most of them were still active and this could enhance meaningful contribution to household up keeping. This conformed Simon *et al* (2013) that age is capable of influencing the use of sustainable agricultural land management practices.

About 92.1% and 69.5% of the male and female farmers respectively, were married. It was difficult to find divorced and separated males in both states because the men were not able to marry more than one woman hence at any point in time men were always with women in their household. This was in line with the findings of Yekinni and Aina (2011) who reported that that marriage is held as a very serious institution especially in rural areas as no adult is deemed responsible without it. With the mean household size of 4 and 5 for male and female households respectively, it implies that the household size was relatively small which may likely be an indication that the families may be regulating their child birth as a result of family planning education given to them in the rural area. Thus, it had negative implication on the adoption of land management practices on the farm because it will reduce the number of helping hands that will carry out the land management practices on the farm since majority of the farmers were subsistence farmers who used family labour on their farms.

The mean years of schooling for male and female respondents were 12 and 10 years, respectively. This implies that most of the respondents were literate at different levels which is an indication that they were likely to adopt improved innovation aiming at improving agricultural productivity and on-farm enterprises development. This result was in conformity with the findings of Mugisha and Aloba (2012) who reported that higher education improves one's ability to understand and assimilate information about new agricultural technologies. Male and Female respondents had mean size of cultivated land of 1.5 and 1.1 hectares of land, respectively. This was in accordance with the observation of Aina (2007) who confirmed that majority of farmers in Africa are subsistence farmers, who have small farms.



holdings ranging from 0.5 hectare to about 4 hectares. The implication of this is that they may only be able to produce food for their household plus little for sale in the neighborhood markets.

Table 1 also revealed that both male respondents from Kwara and Kogi states had access to more hectares of land than female respondents from both states probably due to cultural and social factors that hinder women from having equal access to land as their male counterparts. The result also showed that the mean years of farming experience

among male and female respondents were 25 years 14 years, respectively. Enete et al. (2002) opined that experience most often comes with age, and in traditional societies, the older a woman gets, the more her opinion is respected and sought after, in decision making.

The male respondents in both states spent longer years in farming than their female counterparts. This may indicate that men are identified with farming as an occupation other than the women who combine house chores with farming activities.



Table 1: Distribution of respondents According to Socio- economic Characteristics

Variables	Male		Female	
	Percentage	Mean	Percentage	Mean
Age (Years)				
≤ 30	11.9	49 years	11.9	44 years
31-40	17.9		28.5	
41-50	29.8		33.8	
51-60	23.8		23.2	
Above 60	16.6		1.3	
Marital status				
Single	6.6		5.3	
Divorced	0.0		4.3	
Widowed	1.3		17.2	
Separated	0.0		4.3	
Married	92.1		69.5	
Household size(Persons)				
1-3	49.7	3.9	55.0	4.5
4-6	41.7		19.2	
7 and above	8.6		25.8	
Years of schooling				
0	7.9	12.1. years	8.8	11years
1-6	17.2		14.6	
7-9	8.6		4.7	
10-12	21.2		35.1	
≥13	45.1		37.8	
Total size of cultivated land				
< 1 hectare	2.6	1.5 hectares	12.6	1.1 hectare
1- 2.99	58.9		71.5	
3.0-4.99	26.6		14.6	
5.0-6.99	10.6		1.3	
Above 7	1.3		0.0	
Farming experience(Years)				
1-10	19.2	25.4	52.3	14.2
11-20	25.5		30.5	
21-30	28.5		10.6	
31-40	17.9		5.3	
Above 40	8.6		1.3	
N=302				



3.2: Land management practices adopted by respondents in Kogi and Kwara States

Table 2 shows the land management practices adopted by male and female respondents in both states. The result showed that 80.8 percent of the respondents practiced shifting cultivation. This was followed by tree planting (79.5 percent) and contour plowing with 72.8 percent. Next was planting of cover crops with 72.6 percent. Other practices followed this order: Bush fallowing (72.2 percent controlled bush burning (69.5 percent), sole cropping (62.9 percent), mixed cropping (56.5 percent), crop rotation (47.0 percent manure application (39.9 percent), use of irrigation (31.2 percent) constructing drainage system (6.6 percent), zero tilling farming (5.3 percent) while alley farming and taungya farming had 0.7 percent each.

Among the female respondents, mixed cropping had 99.3 percent of adopters, followed by planting of cover crops with 86.8 percent. Other practices followed this order: crop rotation (80.8%), contour plowing (69.5%), controlled bush burning 56.3%, shifting cultivation (34.4%), manure application (20.5%), Tree planning (20.5%), the use of irrigation (18.6%) sole cropping (13.9%), zero tilling farming (1.3%) and constructing drainage system (1.3%), while none of the female respondents practiced alley and Taungya farming. The result indicated wide spread adoption of most of the

land management practices among both gender meaning that they were aware of the significance of these practices especially under limited land acquisition. Mixed cropping had the higher percentage among the female than the male respondents. This may be due to the fact that they made use of the little available land resources to maximize their output. The finding also indicated that respondents avoided other management practices like taugya farming, alley farming, zero tilling farming and constructing drainage (Modern land management practices). This may be attributed to lack of awareness of the worth of the practices, availability of limited land, site/location specification, poor r access to labor, financial constraints and other edaphic factors. It is worth noting that the male respondent were more involved in the practices that allowed them to abandon a piece of land for some time and return to it later because they had more access to land, but women were not opportune to do so, hence, they practiced land management that will allow them to cultivate for a longer period of time on a piece of land so their involvement in mixed cropping and crop rotation was high. This result was in agreement with the report of Cheryl *et al.* (2009) reported that the channel through which people acquire land determines the type of land management practiced on such land.



Table 2: Distribution of respondents by land management practices in Kogi and Kwara States

*Land Management Practices	Male (%)	Female (%)
Shifting cultivation	80.8	34.4
Crop rotation	47.0	80.8
Mixed cropping	56.5	99.3
Planting of cover crops	72.6	86.8
Bush fallowing	72.2	11.3
Manure application	39.9	20.5
Contour Plowing	72.8	69.5
Tree planting	79.5	20.5
Controlled bush burning	69.5	56.3
Sole cropping	62.9	13.9
The use of irrigation	31.2	18.6
Zero tilling farming	5.3	1.3
Constructing drainage system	6.6	1.3
Alley farming	0.7	0.0
Taungya farming	0.7	0.0

N=302

*Multiple responses

3.3 Level of Adoption of Land Management Practices

Table 3 shows that male and female farmers in both states were in the medium category of adoption with 72.8 percent and 70.2 percent respectively. Although, the category of low level of use was evident among the two genders, it was more pronounced among the female respondents with 14.6 percent among the male gender but 19.2 percent among the female gender. However, the level of use at the high level was almost at par for both genders with 12.6 percent for male and 10.6 percent for female. This result implied that majority of the respondents were in the medium level of adoption.

The implication of the results was that only fewer respondents belonged to the high level of adoption with majority at the medium level, therefore, more sensitization and training are needed among crop farmers to enhance the increase of adoption of land management practices in the zone in order to enhance and sustain agricultural activities on the farm. This could probably be due to lack of awareness of the advantages of some of the land management practices, availability of land, financial constrain and other factors. This conformed the report of Adekoya (1997) who reported that small scale farmers are with a lot of problems in integrating many of the land management practices. The result showed that des



challenges faced by women farmers on land acquisition, they still made use of the limited land they had to practice land management

effectively. Thus, if given equal opportunity of acquiring land their management practices will be better than their male counterparts.

Table 3. Distribution of male and female respondents according to categorization of adopters of land management practices in Kogi and Kwara states

Categories of Adopters	Frequency	Male (%)	Frequency	Female (%)
Low adopters	22	14.6	29	19.2
Medium adopters	110	72.8	106	70.2
High adopters	19	12.6	16	10.6
Total	151	100	151	100

Mean score for Male respondent = 41.3, SD= 4.7, Mean score for Female respondents = 34.2, S.D = 4.

Table 4 shows the significant differences in the level of adoption of land management practices of male and female respondents. Significant differences existed in the adoption of land management practices such as in shifting cultivation, crop rotation, mixed cropping, bush fallowing, application of animal waste, contour plowing, tree planting, irrigation, sole cropping and construction of drainage at $P < 0.05$ and between male and female crop farmers in Kogi and Kwara States. The respondents adopted different types of management practices depending on the pattern of access to land. The male

respondent seemed to be more involved in the practices which allowed them to abandon a place for some time before returning to it later. This finding supports in Table 2 which shows that mixed cropping and crop rotation had higher percentage among the female respondents, which indicated that they made use of the little available land resources to maximize their output. Therefore, the null hypothesis that stated that, there was no significant difference in the level of adoption of land management practices across the study area was rejected.



Table 4: Summary of analysis of variance (ANOVA) showing differences in the level of adoption of land management practices of the respondents in the study area.

Land management Practices	Square of Variance	Sum of Squares	Df	Mean square	F	P value	Res
Shifting cultivation	Between groups	103.654	3	34.551	32.245	.000	S
	Within groups	318.332	298	1.068			
	Total	421.987	301				
	Total						
Crop rotation	Between groups	192.801	3	64.267	71.279	.000	S
	Within groups	268.686	298	.902			
	Total	461.487	301				
	Total						
Mixed cropping	Between groups	10.435	3	.3478	5.396	.001	S
	Within groups	192.085	298	.645			
	Total	202.520	301				
	Total						
Bush fallowing	Between groups	277.858	3	92.619	98.137	.000	S
	Within groups	281.243	298	.944			
	Total	559.099	301				
	Total						
Tree planting	Between groups	216.161	3	72.054	65.742	.000	S
	Within groups	326.610	298	1.096			
	Total	542.772	301				
	Total						
Sole cropping	Between groups	102.259	3	34.086	29.005	.000	S
	Within groups	350.204	298	1.175			
	Total	452.464	301				
	Total						
Construction of drainage	Between Groups	22.568	3	7.523	15.829	.000	S
	Within Groups	141.621	298	.475			
	Total	164.189	301				
	Total						

4.0 CONCLUSION AND RECOMMENDATIONS

The study concluded that there was significant difference in the level of adoption of land management practices among male and female crop farmers. Therefore, there is need for more

enlightenment by educating both genders about the right of an individual starting from childhood so that each gender will be given equal opportunity to survive and have access towards production resources such as land.



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