Gender differentials in the accessibility of farm inputs among arable crop farmers in Oyo state, Nigeria

[1]Kayode, A. O. and [2]Okunade, E. O.
[1]University of Ilorin, Ilorin, Nigeria
[2]Ladoke Akintola University of Technology, Ogbomoso, Nigeria
Correspondence contact detail: toyinkayode2000@yahoo.com, +2340867309397

Abstract: The study assessed gender differentials in the accessibility of farm inputs among arable crop farmers in Oyo State, Nigeria. A two-stage sampling technique was used to select two hundred and ten (210), farmers. Descriptive statistics was used to present the data and inferential statistics was used for data analysis. Male respondents have more access to farm inputs such as inorganic fertilizers (99.0%), while the female farmers had more of storage facilities (89.5%). Major constraints affecting access to farm input among the male farmers were inadequate extension contacts, (96.2%) while among the female farmers lack of capital (94.3%), was a major constrain. Access to farm inputs was significantly influenced by household size (0.050), years of education (0.371) and years of farming (0.768) while for female farmers it was age (0.047), household size (0.384), years of education (-0.312) and membership in farmers association (0.008). Female farmers were found to have poor access to farm inputs than their male counterparts. There is need for policy to address improved access to farm inputs for farmers and also extension agencies should disseminate adequate information on channels for farm inputs among both genders.

Keywords: Gender, farm inputs, accessibility, differentials, farmers

INTRODUCTION

Farming is an income-generating business which contributes significantly to the economy of any country. An estimated 76 % of Nigeria's population lives in the rural area and Agriculture remains the primary source of livelihood for these rural dwellers Otekhile and Verter (2017). This indicates that the growth of Agricultural sector has direct impact on the welfare of the rural dwellers hence it is imperative to look critically into the type and source of inputs which determines the outputs i.e. the yield of their farm business. Rahji and Fakayode, (2009) also confirms Agriculture as a major sector in the economy that contributes enormously to Nigeria's GDP. Agricultural sector can be referred to as Mother of all sector owing to the fact that all the other sectors directly or indirectly depend on agriculture either for food to sustain their workforces or as crucial input in their production process Yusuf (2014).

However, considering the vital roles the Agricultural sector plays at household and national level, input supply is a factor that is key to sustain Agriculture. Farm inputs can be described a range of materials used to enhance agricultural productivity, most important among these are fertilizers, improved seeds, storage and harvest facilities The use of farm inputs is fundamental to agriculture in developing countries such as Nigeria and also for the sustainability of Agriculture, farm inputs must be accessible, available and affordable to farmers. For agriculture to prosper, farm inputs need to be available, affordable, accessible, and of good quality. Seeds, fertilizers, and agro-chemicals are essential for improving the productivity and incomes of smallholder farmers in developing countries (World Bank, 2013).

Pauleen, (2017) asserts that Agricultural inputs are great determinant of yields in any type of agricultural production. In the modern world today, agriculture has become extremely dynamic therefore, making the kind of inputs that are being used in the sector today upgraded. There are two types of inputs according to Scool (2020), the natural or physical inputs and the human inputs. Examples of physical inputs are weather, climate, relief, soil, geology and latitude. Farmers have little or no control over these inputs, changes can be sometimes done but it usually involves a lot of expenses. Examples of human inputs include machinery, fertilizers, pesticides, seeds, government influence, livestock, animal feed, workers and other facilities, they are usually paid for.

However, gender differences, arising from the socially constructed relationship between men and women affect the distributions of agricultural resources and may cause disparities in the farmers having access to farm inputs and may likely affect their farm outputs. It is worth noting that the rights, responsibilities and opportunities of individuals should not be determined by the fact of being born male or female. In other words, it is a point when both men and women realize their full potential. Also, men and women share many responsibilities and engage in different production system, different needs and constraints relating to their farm activities. Men and women continue to have differential access to agricultural resources despite the seemingly equal roles they play in agriculture in many developing countries, they both contributes significantly to agricultural production, yet their access to agricultural resources differ [Food and Agricultural Organisation (FAO) (2010)]

Several researches have observed that in agricultural production, women are more constrained than their male counterparts as a result of which most women have less access to and higher effective costs for information technology,

inputs and credit (Shultz, 2007 and Yemisi et al. 2009). It has been assumed that if the income of women increased they may have more access to resources and invest in their children's education, health care and nutrition. However, they are constrained by poor access to resources, poor educational background, and poor network and mobility restrictions. However, farm inputs are great determinants of yields in any type of agricultural production (Yengoh, 2012; McAuthur, 2017; Pauleen 2017). (No source). Considering the established disparity in access to production inputs between male and female farmers.

Although both male and female are involved in agricultural production, the level of accessibility to arm inputs in the study area is undermined. The study therefore, examined farmers' accessibility to farm inputs among male and female farmers in Oyo State, Nigeria. The specific objectives were to; describe the socio-economic characteristics of the male and female farmers; determine the level of access of male and female farmers to Farm inputs and identify the constraints to access of farm inputs to male and female farmers,

The hypothesis stated that there is no significant relationship between some selected socioeconomic characteristics of the male and female farmers' and access to farm inputs.

METHODOLOGY

The study was carried out in Oyo state which is predominantly agrarian with about 70 percent rural population. The land covers a vast area of 32,249.10 square kilometres out of which 27,107.93 km is cultivable Oyo State Agricultural Development Programme, (2001). Oyo State has 33 Local Government Areas. The main occupation of majority of the people in the study area is farm as is typical of any rural area in Sub-Saharan Africa (SSA) Oyo State Agricultural Development Programme, (2001). The major crops grown in the study area include maize, yam, cassava, cocoyam, vegetables (such as okra, melon, tomatoes, and pepper), plantain, banana, cocoa, oil palm and rubber. Some of the inhabitants also engage in other income generating activities like trading, processing, marketing of agricultural produce and handicraft.

A two-stage sampling technique was used for the selection of the respondents. The first stage involved a random selection of 20% out of the 33 LGA in Oyo state giving a total of 7 LGAs which includes: Surulere, Ibarapa, Akinyele, Ogbomoso North, Ogbomoso South, Afijio and Saki west Local Government Areas. The second stage involved random selection of one village from each of the selected Local Government Areas. In each village, thirty (30) farming households were selected among the farming households in the selected Local Government Areas consisting of fifteen male and fifteen female farming households to make up a sample size of two hundred and ten respondents (210). Justification for the use of 30 farming household was to achieve a manageable size while ensuring equitable distribution among respondents. Data collected were analyzed with descriptive statistics such as frequency, percentages and mean while linear regression was used to analyze the data.

The level of accessibility of male and female farmers to farm inputs, it was measured on a four (4) point Likert type scale of Very accessible (3), Accessible (2), Fairly accessible (1) and Not accessible (0). These values were summed up to obtain 6 and was further divided by 4 to get 1.5. Variables with the mean equal or greater than 1.5 was considered as good access to farm inputs while variables with mean lower than 1,5 was considered as poor access to by the farmers (Okunade,2007). Also, for further categorisation of accessibility of farm inputs, respondents were asked to indicate their choices among the farm inputs presented to them. For the ten (10) farm inputs that was presented, any respondents that had access to (6) six farm inputs and above is regarded as having high level of accessibility to farm inputs while any respondents that have less than six inputs is categorized as low access to farm inputs. To identify constraints, respondents were asked to tick ''yes or no" against a list of possible constraints applicable to them.

A linear regression analysis was used to determine socioeconomic factors influencing farmers' access to farm inputs. Regression analysis is useful for determining the relationship between the endogenous and exogenous variables as well as determining the overall effects of all these variables on the endogenous variables.

The linear regression model is specified as;

$Y=bo+b_1x_1+b_2x_2+b_3x_3+b_4x_4+b_5x_5 \ldots\ldots b_7x_7+u_i$

Where

Y= access to farm inputs among male and female farmers

Where

bo = Constant

X_1=Age of the respondent (Actual age in years)

X_2= Marital status (dummy)

X_3=Household size (Actual number of members of the household)

X_4= Years of schooling (Actual years spent in school in years)

X_5=Size of cultivated land (hectares)

X_6= Farming experience (Actual farming experience in years)

X_7= Membership of association (member = 1; Non-member of association =0)

u_i= error term

RESULTS AND DISCUSSION

Socioeconomic characteristics of respondents

Results on table 1 revealed that the mean age of male and female farmers were 42.8 and 40.7 years respectively which denotes an active and economical age group. About 91.4% of the male farmers and 77.1 % of the female farmers were married. Also, the mean household size for male and female farmers were 9 and 11 persons respectively, which indicates a relatively large household size that implies likely increased availability of family labour on various agricultural production activities bt the farmers. The mean years of schooling for the male and female farmers were 11.4 and 8.8 years respectively. This implies that most of the farmers were literate at various levels and it was further revealed that the mean total size of cultivated land for male farmers was 2.2 hectares while that of their female counterparts was 1.3 hectares. This results agrees with the findings of Daudu et al. (2016) that male farmers have farm size larger than their female counterparts and could be attributed to the fact that female farmers may be engaged in other business that is fetching them extra income. Kayode et al (2017) also reported that both men and women are small scale farmers practicing on small acreage of land. Years of farming experience for both male and female farmers were found to be 18 and 13 years respectively. Also, 69.5% of the male farmers claimed they were members of farmers' organisation and 64.8% of the female were also members of farmers' organisation

Table 1: Distribution of socio-economic characteristics of the male and female arable crop farmers

Socioeconomic characteristics	Male Frequency	Percentage	Mean	Female Frequency	Percentage	Mean
Age (Years)						
≤ 30	28	26.7		23	21.9	
31-50	49	46.7	42.8	60	57.1	40.7
Above 50	28	26.7		22	20.9	
Marital status						
Married	96	91.4		81	77.1	
Divorce	0	0		13	12.4	
Widowed	9	8.6		11	10.5	
Household size (Person)						
1-3	26	24.8		17	16.2	
4-6	47	44.8	9.1	45	42.9	11.3
Above 6	32	30.5		43	40.9	
Years of schooling						
0	15	14.2		20	19.0	
1-6	30	28.6	11.4	43	40.9	8.8
6-12	38	36.2		28	27.6	
Above 12	22	20.9		14	13.3	
Size of Cultivated land (ha)						
< 1	24	22.9		58	55.2	
1-2.99	52	49.5	2.2	37	35.2	1.3
3-4.99	22	20.9		10	9.5	
≥5	7	6.6		0	0	
Farming experience (Years)						
≤ 10	19	18.1		76	72.3	
11-20	64	60.9	18.4	21	20.0	13.9
Above 20	22	21.0		8	7.6	
Membership of farmers' cooperative society						
Yes	73	69.5		68	64.8	
No	32	30.5		37	35.2	

Source: Field Survey (2018)

Accessibility of male and female farmers to farm inputs

The results on table 2 showed ranking of the accessibility of male and female farmers to farm inputs in the study area and based on the mean score of 1.5 It was revealed that male farmers have more access to farm inputs such as inorganic fertilizer (WMS=2.28), pesticides (WMS= 2.11), herbicides (WMS= 2.06), land (WMS= 1.77) Varieties of root and tuber crops (WMS=1.70) Improve varieties of seed and Harvest facilities had (WMS= 1.57) each while among the female farmers, farm inputs such as pesticides (WMS= 2.53), harvest facilities (WMS= 2.36) Herbicides

(WMS = 2.22), Inorganic Fertilizer (WMS= 1.93) and Varieties of root and tuber crops (WMS= 1.63) were easily accessible among the female folks.

This result implies that both male and female farmers have relatively equal access to some farm inputs while access to farm inputs such as land and improved varieties of seeds are still limited among the female farmers. This result is in tandem with the findings of Okonya (2014) that factors such as culture, tradition, gender roles and responsibilities could affect access of women to agricultural information and farm inputs. It was also noted that the male farmers had better access to inputs that has to do with production, management of pest and diseases while the female farmers had better access to storage facilities and harvest facilities.

Table 2: Rank order of accessibility of farm inputs among the male and female farmers

Farm inputs	Male (n=105)		Female (n=105)	
	WMS	Rank	WMS	Rank
Inorganic fertilizers	2.28	1st	1.93	4th
Organic Fertilizers	1.42	8th	0.38	10th
Improved varieties of seeds	1.57	6th	0.84	7th
Farm machines	1.04	9th	0.88	6th
Pesticides	2.11	2nd	2.53	1st
Land	1.77	4th	0.42	9th
Harvest Facilities	1.57	6th	2.36	2nd
Herbicides	2.06	3rd	2.22	3rd
Varieties of root and tuber crops	1.70	5th	1.63	5th
Storage facilities	0.40	10th	0.73	8th

Source: Field Survey (2018) *Mean =1.5
WMS= Weighted Mean Score

Level of Accessibility to Farm inputs

Table 3 further shows level of accessibility to farm inputs. For the ten farm inputs that was presented, any respondents that had access to six farm inputs and above is regarded as having high level of accessibility to farm inputs while any respondents that have less than six inputs is categorized as low access to farm inputs, Based on this, 78.6% of the male farmers have high access to farm inputs while 21.4% had low access to farm inputs. Among the female respondents, 61.9% had high access to farm inputs while 38.9% had low access to farm inputs.

Table 3: Distribution of Male and Female Farmers by Level of Accessibility to Farm Input

Level of Accessibility	Percentages		Mean score
	Male	Female	
High	78.6	61.9	6
Low	21.4	38.9	
Total	100	100	

Source: Field Survey (2018)

Constraints to accessibility of farm inputs by the male and female arable crop farmers

The results as presented in table 34shows the constraints to accessibility to farm inputs among the respondents. Inadequate extension agents contact (96.2%), improper understanding of the farm inputs (Technical Know-how) (92.4%), lack of capital (91.4%) and high cost of farm inputs (85.7%) were major constraints among the male farmers while among the female farmers, lack of capital (94.3%), High cost of transportation (82.8%), inadequate extension agents contact (76.2%) and cultural beliefs (74.3%) were common factors that influenced their access to farm inputs This is evidenced by the fact that inadequate extension agent contact was a factor that influenced access to farm inputs among the male and female farmers. This implies that there is need for extension agents to intensify efforts on sensitizing the farmers on the uses of appropriate farm inputs on the farms in the study area in order to maximize their outputs.

Table 4: Constraints to accessibility of farm inputs by male and female farmers,

Constraints	Male (n=105)		Female (n=105)	
	Frequency	Percentage	Frequency	Percentage
Lack of capital	96	91.4	99	94.3
Cultural beliefs	23	21.9	78	74.3
Weather	25	23.8	32	30.5
High coat Transportation	35	33.3	87	82.8
Inadequate extension agents contact	101	96.2	80	76.2
Improper understanding of Farm inputs (Technical Know-how)	97	92.4	54	51.4
Presence of pest	70	66.7	59	56.2
High cost of farm inputs	90	85.7	76	72.4
Age related problems	50	47.6	83	79.0

Source: Field Survey (2018)
***Multiple responses**

Test of Hypothesis

Results on table 5 shows that among the male farmers, household size (r= 0.050), education (r = 0.371) and years of farming experience (r= 0.768) has a significant relationship with level of access to farm inputs This implies that families with more members will likely have more access to farm inputs than smaller household size. Also, the positive nature of the relationship between education (r= 0.371), years of farming experience (r= 0.768) and level of access to farm input indicates that male farmers with a higher level of education and those with more years of farming experience were likely to have more access to farm inputs. This finding is consistent with report of Omotesho *et al* (2019).

In the female category, significant relationship exists between age (r= 0.047), household size (r=0.384), farmers' association (r=0.008) and level of access to farm input. This implies that the older female farmers are more likely to have access to farm input than the younger ones. This finding corroborate with Ango *et al*. (2014) who confirmed that there is significant relationship between age of the farmers and access to farm inputs. Also the positive relationship between farmers association and level of access to farm inputs implies that women farmers in association are more likely they have access to farming inputs than those who do not join farmers association. This is in line with the findings of Nazaki (2017) who reported that women farmers' participation in farmers association is a great step towards their empowerment and a key towards improved output by having better access to input opportunities. On the other hand, the inverse relationship between education (r=-0.312) and level of access to farm inputs among female farmers contradict a *priori* expectation that that the educated farmers may have more access to farm inputs due to the fact that education has been reported to be crucial effect on farmers ability to adopt innovations. This result implies that the literate women may not be interested in farming activities in the study area. The R^2 values of 0.5543 (Male) and 0.5431 (Female) explains the variation in their level of access to farm inputs.

Table 5: Result of regression showing relationship between selected socioeconomic characteristics of male and female farmers and level of access to farm inputs

Socioeconomic characteristics	Male (n=105)			Female (n=105)		
	Regression co-efficient	Standard error	p-value	Regression co-efficient	Standard error	p-value
Age	2.503	2.247	0.653	0.047	0.183	0.003*
Household size	0.050	0.023	0.005**	0.384	0.216	0.001*
Extension visits	2.267	1.234	0.399	2.895.	2.361	0.294
Education	0.371	0.140	0.000*	-0.312	0.03	0.005**
Farm size	0.300	0.190	0.026	0.715	0.344	0.790
Years of farming experience	0.768	0.117	0.002*	0.035	1.904	0.276
Farmers association	2.783	0.711	0.843	0.008	0.022	0.024**

Male Female
R^2= 0.5543 R^2 = 0.5431
F Value =1.91 F Value=1.94
Source: Field Survey (2018)
** Significant at 5%
*Significant at 1%

CONCLUSION AND RECOMMENDATIONS

The study concluded that although both male and female farmers have access to farm inputs, more females have low access to farm inputs than their male counterparts. Inadequate contact of extension agents was a common constraint among both gender. Access to farm inputs for male farmers was influenced by household size, education, years of farming experience and while that of female was influenced by age, household size, education and farmers' association influences their access to farm inputs in the study area. Based on these findings it was recommended that extension agents should be available to the male and female farmers and disseminate information on accurate knowledge on the accurate use of farm inputs. There is also the need to subsidized farm inputs by the government or stakeholders to make it affordable to both male and female farmers. Also identified gender differences in farm inputs should be considered in policies and other strategies.

REFERENCES

Ango, A. K., Ibrahim, S. A., Yakubu, A. A., and Alhaji, A. S. (2014): Impact of Youth Rural-Urban Migration on Household Economy and Crop Production: A case study of Sokoto Metropolitan Areas, Sokoto State, North-Western Nigeria. *Journal of Agricultural Extension and Rural Development, 6(4), 122-131.*

Daudu A. K., Oladipo, F. O. and Kayode, A. O. (2016): Gender Capacity Building Needs on Soil Fertility Management Practices Among Small Holder Arable Crop Farms in Kwara state, Nigeria. *Journal of Saudi society of Agricultural sciences Page 5*

Food and Agricultural Organisation (2002): Gender and Access to Land Produced by Economic and Social Development Department in FAO (2009) "Gender Dimension of Agriculture, Poverty, Nutrition and Food Security in Nigeria. "Scaling Up Issues and Option*". Draft paper*. Rome.

Food and Agricultural Organisation. (2010): Country Support Tool – for Scaling-Up Sustainable Land Management in Sub Saharan Africa. Food and Agriculture Organisation of the United Nations, Rome, Italy.

Kayode, A. O., Oladipo, F. O. and Daudu, A. K. (2017): Determinants of Adoption of Land Management Practices in Kogi state Nigeria: A Gender Analysis Journal of Tropical Agriculture, Food, Environment and Extension. 16(2): 52 - 58

Mcarthur, J. W. and McCord G. C. (2017): Fertilizing Growth: Agricultural Inputs and their Effects in Economic Development. *J. Development Economics* Vol. 127 Pp133-152

Nakazi, F., Aseete, P., Katungi E. and Ugen, M. A. (2017): The Potential and Limits of Farmers' Groups as Catalysts of Women Leader. *J. Cogent Economics and Finance*. 5, (1)

Ogunlela, Y. I. and Mukhtar, A. A. (2009): Gender Issues in Agriculture and Rural Development in Nigeria: The Role of Women. *Humanity and Social Sciences Journal 4*

Okonya, J. S. and Kroschel, J. (2014): Gender Differences in Access and Use of Selected Productive Resources Among Sweet Potatoes Farmers in Uganda. *Agriculture and food security* 6(1).

Okunade, E. O. (2007): Accessibility of agricultural credit and inputs to women farmers of Isoya Rural Development Project. *Research Journal of Agriculture and Biological Sciences* 3(3 138-142.

Omotesho, K. F., Adesiji, G. B., Akanbi, S. O., Awoyemi A. O. and Ekuemuka, J. (2019): Adoption of Agricultural Entrepreneurship Skills among Arable Crop Farmers in Kwara State, Nigeria. *J. Research in forestry, wildlife and environment* Vol 11(2) pp 179-186

Otekhile, C. A. and Verter, N. (2017): The Socio economics Characteristics of Rural Farmers and Net income in Ojo and Badagry Local Government Area of Lagos state, Nigeria. *ACTA Universitalis Agriculturea et Silvicuturae Mendalianae Brunensis*

Oyo State Agricultural Development Programme (OYSADEP) (2001): A Report of Village Listing Survey in Oyo State. Planning, Monitoring and Evaluation Department, Oyo State Agricultural Development programme p1-15 (1): 19-30.

Pauleen, M. (2017) Importance of Various Farm inputs in Agribusiness http://shambaza.com/listing/farm-machinery-equipment Date accessed?

Rahji, M. A. Y. and Fakayode, S. A. (2009): A Multinomial Logit analysis of Agricultural Credit Rationing by Commercial Banks in Nigeria, *International Research Journal of finance and economics. 24:91*

Scool, D. (2020): Farming as a System and Factors Affecting Farm Type. S-cool, the revision website. http://www. S-cool. Co.uk/gcse/geography/agriculture/revise-it/farming as a system.com.

Shultz, P. (2007): Role of Women in Agricultural Development. *Journal of Development Studies 2(3):47 – 52*

World Bank (2013). Unlocking Africa's Agricultural Potential. Washington, DC,

USA. URL https://openknowledge.worldbank.org/handle/10986/16624

Yengoh, G. T. (2012): Determinants of Yield Differences in Small-Scale Food Crop Farming Systems in Cameroon. *Agric and Food Security* **1,** 19(2012).

Yusuf, S. A: Role of Agriculture in Economic Growth Development: Nigeria Perspective University of Lagos, Akoka, Lagos, Nigeria. *Munich Personal RePEc Archive* pp1-22