

EFFECT OF GENDER ON ACCESS TO FARM INPUTS BY MAIZE FARMERS IN GWAGWALADA AREA COUNCIL OF FEDERAL CAPITAL TERRITORY, NIGERIA**¹Emmanuel Ogaje ABAH, ²Moradeyo Adebajo OTITOJU ³Elizabeth Samuel EBUKIBA & ⁴Rukayah Adeoti RAJI**^{1, 2, 3 & 4}Department of Agricultural Economics, University of Abuja, NigeriaCorresponding author email: emmanuel.abah@uniabuja.edu.ng; Tell: +2348032905311**Abstract**

The study assessed the effect of gender on farm input acquisitions among maize farmers in Gwagwalada Area Council of Federal Capital Territory (FCT), Nigeria. Multistage sampling technique was used to select eighty (80) maize farmers. Descriptive and inferential statistics were used for data analysis. Result showed that most of the farmers were between 40 and 50 years, between 90% and 100% married, 19.3 and 14.3 years of farming experience for female and male farmers respectively. Male respondents had more access to farm inputs such as inorganic fertilizers (65%), farm land (70%) and irrigation facility (12.5%). The female farmers had more of farm machines (52.5%), organic manure (70%) and improved seed (65%). Access to farm inputs was significantly influenced by household size (0.597), years of education (0.911) and years of farming (0.620) while for female farmers it was influenced by age (0.738), household size (0.404), years of education (0.719) and membership of farm based association (0.995). There is need for policy to address improved access to farm inputs to both male and female without gender bias, identified gender differences in farm inputs distribution should be eliminated and patriarchal land tenure which gives male more access to land should be addressed by legislature.

Keywords: Gender differences, farm inputs access, maize farmers**Introduction**

Farming is a crucial economic activity in the World and the fulcrum of Nigeria economy. It provides income to those who practice farming and farm related activities, especially those living in rural areas. According to Otekhill and Verter (2017), about 76% of Nigerians reside in rural areas, where agriculture is the primary source of livelihood. Agriculture can be seen as the foundation of all other sectors, as most of these sectors rely on it for food to sustain their workforce and as a vital input in their production processes (Yusuf, 2014).

The growth of the agricultural sector directly affects the well-being of rural dwellers. It is also essential to examine the type and source of farm inputs which determine the outputs, yield and return to the farm manager. Farm inputs include items like seeds, fertilizers, pesticides, machinery, irrigation systems and livestock feed (Food and Agriculture Organization [FAO], 2013). It is also essential that these farm inputs are accessible and affordable to the farmers to ensure sustainability of agriculture, particularly in developing countries like Nigeria (World Bank, 2019). Farm inputs such as seeds,

fertilizers and agro-chemicals are important for improving productivity and income of smallholder farmers in developing countries (World Bank, 2013). Farm inputs are recognized as significant factors determining yields in agricultural production (McArthur & McCord, 2017; Yengoh, 2012).

According to Adeola and Ayoade (2009), gender is the socio-cultural constructions of roles and relationship between men and women, that often change over-time and are content-specific. Similarly, World Bank (2001) posited that gender is socially constructed roles and social behaviour and expectations associated with female and male. Gender is further referred to the socially built connections between men and women (Ike & Ugwumba, 2009). Gender roles are the socially prescribed duties that are assigned to men and women and change between societies, cultures, classes and time periods in history. It is crucial to attend to gender in agriculture because gendered inequalities may contribute to global hunger and food insecurity (Njuki, Parkins, & Kaler 2016; World Bank 2009). The social relations of gender encompass all dimensions of social

interaction, including power play, access to resources for production, income distribution, and payment for work, cultural, and religious activities (Adeola & Ayoade, 2009).

Maize (*Zea mays* L.) has a wide range of uses. Due to its maximum genetic production potential, it is referred to as the “queen of cereals” internationally (Sanodiya, Tiwari & Gupta, 2023). It can be cultivated in a variety of climates, ecosystems, and environments (Murdia, Wadhwani, Wadhawan, Bajpai & Shekhawat, 2016). It is also processed industrially for flour, animal feeds, biscuits, beverages and beer which are consumed widely across the country. It is believed to be a credible strategy for meeting the food scarcity challenges facing Nigeria. Despite the importance of maize, its production in Nigeria has been insufficient to meet the needs of people, industry and livestock. This is because most of the maize producers lack access to improved production inputs such as seeds, fertilizer and farmer friendly credits.

The relationship between inputs and credit accessibility for male and female farmers was examined by Ogunlela & Mukhtar (2009) and found that women face constraints such as limited access to resources, lower levels of education and restricted mobility. Similarly, Meinzen-Dick, Johnson, Quisumbing, Njuki, Behrman, Rubin, Peterman and Waithanji (2011) examined gender differences in access to agricultural resources in maize farming communities in East Africa and found that gender plays a significant role in the acquisition of farm inputs, which include seeds, fertilizers, pesticides, and machinery. Doss (2018) investigated gender differences in maize production in Ghana and found that women farmers generally face limitations in accessing crucial inputs like improved seeds and fertilizers due to prevailing social norms and discriminatory practices.

The objectives of this study is to describe the socioeconomic characteristics of the male and female maize farmers in the study area, determine their level of access to affordable farm inputs and examine the effect of gender in accessing farm inputs by the respondents. This study provide valuable insights for policymakers and agricultural stakeholders in understanding the gender-specific constraints

and opportunities related to farm inputs acquisition and promote gender equity in agriculture. The information collected was based on 2023 cropping season. The unit of analysis for this study was maize farmers.

Methodology

The Study Area

This research was done in Gwagwalada, FCT, Nigeria which is positioned between latitudes 8°00'25" and 9°00'25" North of the equator and longitudes 6°04'51" and 7°04'51" East of the Greenwich Meridian. The Federal Capital Territory (FCT) is divided into six (6) Area Councils, which are AMAC (Abuja Municipal Area Council), Bwari, Kuje, Gwagwalada, Kwali, and Abaji. The FCT has a total land area of approximately 7,607 square kilometers. Gwagwalada Area Council consists of ten wards: Dobi, Gwagwalada Centre, Gwako, Ibwa, Ikwa, Kutunku, Paiko, Staff Quarters, Tungan Maje, and Zuba. The primary economic activity in the rural community is subsistence agriculture.

Sampling Procedure

Multi-stage sampling technique was employed in purposive selection of four wards namely: Tunga Maje, Gwako, Zuba and Giridue to prevalence of maize production. Lists of respondents comprising maize farmers were gathered from the Agriculture Development Programme (ADP) office in Gwagwalada, forming the basis for the sampling frame. From the sample frame, eighty (80) maize farmers comprising 40 male and 40 female farmers who cultivate maize were selected. This consist of 10 male and 10 female from each of the selected wards.

Method of Data Collection

The data collection process centered around a carefully crafted structured questionnaire that addressed gender differences in accessing farm input and factors affect maize farmers access to farm inputs, including age, gender, farm size, off-farm income/employment, and educational background. Furthermore, the survey sought to pinpoint the challenges affecting the overall efficiency of maize farming. The questionnaire was used to solicit primary data from the respondents.

Analytical Techniques

The stated objectives were tackled with descriptive and inferential statistics such as

frequency, percentages and linear regression. The linear regression was used to determine their level of access to affordable farm inputs and examine the effect of gender in accessing farm inputs by the respondents.

The linear regression model is specified explicitly as:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + u_i$$

Where

Y= access to farm inputs among male and female farmers

b_0 = Constant

X_1 =Age of the maize farmers (Actual age in years)

X_2 = Marital status (1 for married member, 0 otherwise)

X_3 =Household size (Number of household members)

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

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 as presented in Table 1 summarized the socioeconomic characteristics of maize farmers. The result revealed that the mean ages of male and female farmers were 45.7 and 50.5 years respectively which denote that the farmers were in their active and economically viable age group which will enhance productivity. This result conformed to Danladi, Oruonye, Wilson-Osigwe and Bala (2021) where the bulk of the

maize farmers were still in their prime age in Taraba state, Nigeria. About 97.5% of the male farmers and 90% of the female farmers were married which implied that the farmers can easily access free labour from their spouse and have responsibility to cater for their spouse. This result disagreed with Ajuwon, Ajah and Idu (2021) who indicated that there are more single male farmers in North Central Nigeria than single female farmers. Also, the mean of household size for male and female farmers were 6 and 9 persons respectively, which indicated a relatively large household size which is likely to increase supply of family labour on various agricultural production activities.

The result also revealed that the mean years of schooling for the male and female farmers were 7.65 and 5.45 years respectively. This result implied that most of the farmers were literate though at low levels. This result tallied with Abah and Abu (2020) who found similar result among soybean marketer and processors. The result further showed that the mean size of cultivated land for male farmers was 0.83 hectares while that of their female counterparts was 0.89 hectares implying that female farmers had slightly higher farm size than the male counterpart. This implied female maize farmer cultivate more land than male. The mean years of farming experience for female farmer was 19.3 while male had 14.3 mean years of experience. This result implied long years of experience in maize production. This result is higher than Danladi *et al.*, (2021) where most of the farmers had farming experience of below 6 years. Also 100% of the male farmers and 95% of the female farmers were members of farm-based organization. In addition, 100% of male and 97.5% of female had extension contact which showed that extension visit was enjoyed by the maize farmers in the study area.

Table 1: Socioeconomic Characteristics of the Maize Farmers in the Study Area (n= 80)

	Freq.	%	Mean	Freq.	%	Mean
Female	Male					
Age in years			50.5			45.7
≤ 39	1	2.5		6	15	
40-49	18	45		23	57.5	
50-59	13	32.5		10	25	
60-69	8	20		1	2.5	
Marital status						
Single	1	2.5		1	2.5	
Married	36	90		39	97.5	
Divorced	1	2.5		0	0	
Widowed	2	5		0	0	
Household size			9			6
1-10	28	70		38	95	
11-20	12	30		2	5	
Farm size in hectare			0.89			0.83
<1	8	20		13	32.5	
>1	32	80		27	67.5	
Farm Experience(years)			19.3			14.3
≤ 10	4	10		15	37.5	
11-20	20	50		18	45	
21-30	16	40		7	17.5	
Year of Schooling			5.45			7.65
≤ 5	11	27.5		5	12.5	
6-10	23	57.5		22	55	
11-15	6	15		13	32.5	
Education Level						
Never attended	10	25		5	12.5	
Primary school	24	60		22	55	
Secondary Education	6	15		13	32.5	
Member of Farm Based Association						
Yes	38	95		40	100	
No	2	5		0	0	
Extension Agents visit						
Yes	39	97.5		40	100	
No	31	2.5		0	0	

Freq. = Frequency, %= Percentage

Source: Field Survey Data, 2023

Access to Farm Inputs by Male and Female Maize Farmers

The result in Table 2 revealed the level of access to various farm inputs by male and female maize farmers in the study area. The finding revealed that access to inorganic fertilizer (IOF) recorded 65% for male farmers and 57.5% for female farmers. This result indicated that male have better access to IOF than their female counterpart. This result contrast Ajah (2014) who found access to fertilizer response for the male farmers was more (1.59) than 1.66 for the female farmers

in Abuja, Nigeria. The result of access to organic Manure (OM) was 70% for female and 67.5% for male maize farmers. This may mean that organic manure is cheap and freely available in the backyard of the farmers hence easily sourced by female farmers while male may not have access to such.

The result for access to improved varieties of seeds (IVS) exposed a significant gender gap with 65% for female and 32.5% for male. This result confirmed Ajah (2014) who found that female farmers had relatively more access

(2.61) to improved crop varieties than their male counterparts (2.52). This result highlighted higher access to improve variety of seed for female farmers than male farmers. Access to farm machines (FM) result showed

higher access for female farmer at 52.5%, compared to 20% for male. Access to pesticide (P) also revealed 90% for female farmers exceeding the 60% access for male farmers.

Table 2: Accessibility of Farm Inputs Between the Male and Female Farmers (n=80)

Accessibility of Input	Freq. Female	%	Freq. Male	%
Inorganic Fertilizer				
Yes	23	57.5	26	65
No	17	42.5	14	35
Organic Manure				
Yes	28	70	27	67.5
No	12	30	13	32.5
Improved varieties of seeds				
Yes	26	65	13	32.5
No	14	35	27	67.5
Farm machines				
Yes	21	52.5	8	20
No	19	47.5	32	80
Pesticides				
Yes	36	90	24	60
No	4	10	16	40
Land				
Yes	24	60	28	70
No	16	40	12	30
Harvesting facilities				
Yes	3	7.5	5	12.5
No	37	92.5	35	87.5
Herbicides				
Yes	39	97.5	35	87.5
No	1	2.5	5	12.5
Seeds				
Yes	18	45	11	27.5
No	22	55	29	72.5
Irrigation Facilities				
Yes	1	2.5	3	7.5
No	39	97.5	37	92.5

Source: Field Survey, 2023

Access to land (L) result showed that male have higher percentage of access (70%) compared to female (60%). This result aligned with Ajah (2014) where result indicated that the male farmers had relatively more access to land (3.22) than the female farmers (2.83). Access to harvesting facilities (HF) depicted a limited access for both genders, with a slight advantage for males (12.5%) than female (7.5%). Access to herbicides (H) result for female exhibited significantly higher access (97.5%) compared to male (87.5%).

This result contrast Ajah (2014) who noted that male farmers had more access to herbicides (2.52) than the female farmers (2.19). Access to maize seeds (S) record showed that female had higher access (45%) compared to male (27.5%). Access to irrigation equipment (IF) was limited to both gender, with a slightly higher percentage for male (7.5%) compared to female (2.5%) farmers.

The result implied that both male and female farmers had relatively equal access to some farm inputs while access to farm inputs such

as land, inorganic fertilizer and improved varieties of seeds are still limited among the female farmers. Similar study by Okonya and Kroschel (2014) revealed 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 probably as a result of dominance of female in storage and processing subsector of agricultural value chain.

Result of Socioeconomic Determinant of Male and Female Farmers Access to Farm Inputs

The results as presented in Table 3 showed that among the male farmers, the coefficient of household size (0.597), level of education (0.911) and years of farming experience (0.620) had a significant relationship with level of access to farm inputs. This result implied 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 level of education (0.911), years of farming experience (0.620) and level of access to farm input by male farmers indicated that educated and experience male farmers were likely to have more access to farm inputs than female. This finding is consistent with Omotesho, Adesiji, Akanbi, Awoyemi and Ekuemuka (2019) who found similar result among arable crop farmers in Kwara state, Nigeria.

In the female category, significant relationship exists between age of farmers (0.738) and membership of farm based association (0.994) and level of access to farm input. This implied that the older female farmers are more likely to have access to farm input than the younger ones. This finding conformed to Ango, Ibrahim, Yakubu and Alhaji (2014) who found that there is significant relationship between age of the farmers and access to farm inputs in Sokoto state, Nigeria.

Also, the positive relationship between membership of farm-based association and level of access to farm inputs implied that women farmers in association are more likely to access farm inputs than those who do not join farm based association. This result is in line with the findings of Nakazi, Aseete, Katungi and Adrogu (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 coefficient of level of education (-0.719) and level of access to farm inputs among female farmers contradict a priori expectation 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 implied that the literate women may not have access and less interested in farming activities in the study area.

Table 3: Result of Linear Regression of Socioeconomic Characteristics of Male and Female Farmers and Level of Access to Farm Inputs

Socioeconomic Characteristics	Male (N=40)			Female (N=40)		
	Co-Efficient	Standard Error	P-Value	Regression Coefficient	Standard Error	P-Value
Age of farmers	0.674	0.572	0.161	0.738*	0.588	0.181
Household size	0.597*	0.176	0	0	0.404	0.424
Extension visits	0.992	0	0	0.994*	0.026	0.001
Education level	0.911*	0.036	0.002	-0.719*	0.037	0.002
Farm size	0.733	0.017	0.001	0.808	0.019	0.001
Farming experience	0.620*	0.590	0	0.591	0.581	0
Farmers based association	0.992	0	0	0.995	0.024	0

** Significant at 5%,* Significant at 1%

Source: Field Survey Data, 2023

Conclusion

The study concluded that although both male and female farmers had access to farm inputs, more females had low access to farm inputs than their male counterparts. Access to farm inputs for male maize farmers was influenced by household size, level of education and years of farming experience. The access to farm input among female farmers was influenced by age, level of education and membership of farm-based association in the study area.

Recommendations

Based on the findings from this study, the following recommendations were made:

- i. farm input should be made accessible and at subsidized rate by government intervention programmes to both male and female gender without bias.
- ii. identified gender differences in farm inputs distribution should be eliminated by government policies and strategies.
- iii. Patriarchal and tenure should be addressed by legislature as the research showed that male had more access to land than female.
- iv. both male and female gender are encouraged to participate in farm-based associations which will facilitate equal opportunity and access to farm inputs.

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