FUDMA Journal of Sciences (FJS)
ISSN online: 2616-1370
ISSN print: 2645 - 2944
Vol. 10 No. 10, May, 2026, pp 380 – 387
DOI: https://doi.org/10.33003/fjs-2026-1010-5106

Determinants of Outputs and Productivity of Small-Scale Okra Farmers in Gwagwalada Area Council, Federal Capital Territory (FCT), Nigeria

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ABSTRACT

This study examines the output determinants and productivity of small-scale okra production among rural farmers in Gwagwalada Area Council, Federal Capital Territory, Nigeria. A multistage sampling technique was employed to select 77 okra farmers from major producing communities, and primary data were collected using a structured questionnaire. Data were analyzed using descriptive statistics, Ordinary least squares (OLS) regression, Total factor productivity (TFP) ratio analysis, Multiple regression on log-transformed data, and the Garrett ranking technique. Findings revealed that farm size ($p < 0.01$) and access to extension services ($p < 0.10$) were the significant positive determinants of okra output. The mean TFP of 0.732 indicated that the majority of farmers (79.2%) could not fully recover production costs from output value, reflecting widespread inefficiency. Farming experience significantly and positively influenced TFP ($p < 0.01$), while older farmers' age exerted a negative effect ($p < 0.10$). The major constraints faced by the respondents were, pest and disease infestation, price volatility, and high input costs. This study therefore recommends targeted policy interventions such as subsidized integrated pest management programs and affordable input delivery systems to close the productivity gap among smallholder okra producers in the FCT.

Keywords: Okra Production, Small Scale Farmers, Total Factor Productivity, Output Determinants, Federal Capital Territory

INTRODUCTION

Agriculture occupies a central role in Nigeria's development architecture. In 2020, the sector contributed roughly 22–25% of the GDP. While essential, it is not necessarily the predominant sector. Nevertheless, research indicates that a significant proportion of rural households (about 60–70%) remain predominantly involved in agriculture, albeit with a degree of livelihood diversification. (National Bureau of Statistics [NBS], 2020). In addition to its macroeconomic importance, agriculture in Nigeria is essential for ensuring food supply, household nutrition, and rural livelihoods, deeming its productivity and efficiency vital for economic growth as well as for the overarching objectives of hunger reduction and poverty alleviation (Olugbire, Sunmbo, & Olarewaju, 2021). Within this agricultural economy, the role of small-scale farmers is foundational. They form the backbone of Nigeria's food system; they operate on fragmented plots with limited access to modern inputs, credit, and extension services, and must collectively meet the needs of a population projected to reach about 400 million by 2050 (Food and Agriculture Organization, [FAO], 2023).

Okra (*Abelmoschus esculentus L. Moench*) is one of the most commercially and nutritionally important vegetable crops cultivated by small-scale farmers in Nigeria, both for domestic and international markets. Okra is esteemed for its nutritional benefits and diverse culinary applications, with global production exceeding 11 million tons in 2022 (Umeri, Nwajei, Moseri, and Bamidele, 2023). Globally, major producers include India, Nigeria, and the United States, underscoring its importance as a staple vegetable in numerous cultures. As of 2023, global okra production reached 12,709,392 tons, with India contributing 62% and Nigeria accounting for 16%, making Nigeria the second-largest producer of okra worldwide. FAO. (2023). At the domestic level, okra plays a pivotal role in Nigerian gastronomy, serving as a fundamental component of soups and stews consumed every day across all geopolitical regions of the nation, owing to its high dietary fibre, mineral, and vitamin content. It also serves as a versatile and economically beneficial crop for farmers and marketers in Nigeria, generating income through the sale of immature fresh leaves and both fresh and dried fruits, which are utilized in various soup products, rendering it a crop of dual value for both subsistence and market-oriented production systems (Alabi et al., 2023). Although Nigeria ranks among the world's top okra producers, its national average yield peaked in 2010 at 27,275 $kg \cdot ha^{-1}$ and has trended downward since then, most sharply in 2011 when average yield fell to 8,735 $kg \cdot ha^{-1}$, a decline attributed to interacting biotic and abiotic stresses and a shortage of improved varieties; this persistent gap between observed and potential yields highlights ongoing inefficiencies in smallholder okra production systems (Ibitoye & Kolawole, 2022).

This poses a question of production output and productivity. The encompassing agricultural productivity concerns in Nigeria underscore the significance of assessing and enhancing it. Research has shown that climate change is currently affecting okra production in Nigeria due to altered rainfall patterns and temperature irregularities, exacerbating environmental stress with existing structural limitations such as insufficient inputs, restricted extension services, and inadequate market access (Onyeneke *et al.*, 2023). Studies on productivity in Nigerian agriculture has predominantly focused on staple crops such as maize, rice, and cassava, such as that of Nwokoro et al. (2021), who examine how improved plant density and fertilizer application can significantly enhance the productivity of cassava–maize systems among smallholder farmers. Olasehinde, Qiao, and Mao (2023) on productivity gaps in maize production, emphasizing the role of technology adoption and managerial efficiency, and Mesele and Huising (2025), who focused on agronomic constraints and nutrient deficiencies affecting cassava productivity. But vegetable crops like okra have been minimally examined. Also, there is a paucity of data from the study area. It is against this backdrop that this study examines the output determinants and productivity of small-scale okra production among rural farmers. This study is essential because it will give agricultural policymakers and extension planners' empirical data on vegetable crop output and productivity in the Federal Capital Territory (FCT), Nigeria, as well as specific recommendations for improving the welfare and productivity of smallholder okra producers. The broad objective of this study was to examine the output determinants and productivity of small-scale okra production among rural farmers in Gwagwalada Area Council, FCT, Abuja, Nigeria. The specific objectives are to describe the socioeconomic characteristics of okra farmers in the study area, determine the factors influencing the output of okra production in the study area, assess the determinants of okra productivity in the study area, and describe the constraints affecting okra farmers in the study area.

MATERIALS AND METHODS

This study was conducted in Gwagwalada Area Council, Abuja, Federal Capital Territory of Nigeria. Gwagwalada has an area of 1,043 square kilometres with a density of 860/sqm (330/km^2). Gwagwalada Area Council serves as a major suburban settlement within the FCT and encompasses several communities, including Gwagwalada town, Tunga-Maje, Kutunku, Ibwa, Paiko, Ikwa, Tungan-Maje and Dobi. The area experiences a tropical climate with an average annual temperature ranging between 28°C and 35°C, with peak temperatures occurring in March and April. The average annual rainfall is approximately 1,500mm to 1,600mm, with about 65% of the yearly precipitation occurring between June and September during the rainy season, Nigerian Meteorological Agency [NiMet] (2023). The estimated population of the Gwagwalada area council is 346,000 inhabitants by 2022, National Bureau of Statistics [NBS], 2022.

The entire territory is situated inside the Guinea Savannah vegetation zone, distinguished by advantageous climatic circumstances and fertile soil characteristics that facilitate various agricultural endeavors. Agriculture constitutes a primary economic activity in the Gwagwalada Area Council, encompassing the cultivation of crops like as maize, cassava, yams, rice, vegetables, soybeans, and okra. In addition to agricultural cultivation, the indigenous populace participates in animal rearing (notably poultry, cattle, and small ruminants), aquaculture, small-scale commerce, and government service occupations (Aluko, Sennuga, & Ezinne, 2021).

A multistage sampling technique was adopted for this study. In the first stage, Gwagwalada Area Council in the Federal Capital Territory (FCT), Abuja, was purposively selected due to the prevalence of okra production in the area. In the second stage, five wards (Gwako, Dobi, Zuba, Kutunku, and Ibwa) were purposively selected based on the high concentration of okra farmers in these locations. The third stage involved the random selection of two communities from each selected ward, giving a total of ten communities. The selected communities were Giri Dagaci and Giri Shika (Gwako ward); Dobi and Kaida (Dobi ward); Kauratsu and Apiya (Zuba ward); Boroki and Dukwa (Ibwa ward); and Wuna and Kutunku (Kutunku ward). Finally, (77) okra farmers were selected from the sampling frame of 95 okra farmers using the Yamane (1967) formula.

It is specified as follows:

$$n = \frac{N}{1+N(e)^2} \qquad (1)$$

Where;

n = Sample size of okra farmers (Unit)
N = Sample population of okra farmers (Unit)
e = Level of Precision (5%)

This study used primary sources for its data. Using interviews and a carefully designed questionnaire, the researcher and skilled enumerators collected the data.

Model Specification

Descriptive and inferential statistics were used to achieve the objectives of this study. Descriptive statistics were used to achieve objective (i); objective (ii) was achieved using the Ordinary Least Squares (OLS) technique.

The model is specified.

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + e_i \qquad (2)$$

Where:

Y = Quantity of Okra harvested (Kg)
X_1 = Farm size (hectares)
X_2 = Farming Experience (Years)
X_3 = Access to extension services, (Yes = 1, otherwise = 0)
X_4 = Seed (Kg)
X_5 = Manure (Kg)
X_6 = Labor use (Man days)
X_7 = Labor cost (#)
X_8 = Agrochemicals (Kg)
X_9 = Access to Credit (Yes = 1, otherwise = 0)
X_{10} = Co-operative membership (Yes = 1, otherwise = 0)
e = Error Term

To assess the determinants of okra productivity in the study area, the Total Factor Productivity and multiple regression were employed. Total factor productivity (TFP) was used as a measure of productivity and is defined as the ratio of total output to total inputs. The TFP was computed as the ratio of total output (in naira) to the total cost of variable inputs (Coelli, Rao, O'Donnell, & Battese, 2005).

The model is specified.

$$TFPi = \frac{Total\ Output\ (₦)}{Total\ Variable\ Input\ Cost\ (₦)} \qquad (3)$$

To examine the determinants of productivity, the log-transformed TFP was regressed on selected socio-economic and institutional variables using a multiple regression model. According to Uyanık and Güler (2013), multiple regression analysis is used to predict the value of a variable based on other influencing variables. The variable being predicted is referred to as the dependent variable. Unlike simple regression, multiple regression involves two or more independent variables. These independent variables collectively influence or explain variations in the dependent variable.

The formula representing Multiple Regression Analysis is as follows;

$$\ln(TFP) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + e_i \qquad (4)$$

Where:

ln (TFP) = Total Factor Product
X_1 = Age (Years)
X_2 = Farming Experience (Years)
X_3 = Educational level (Years)
X_4 = Household size (Numbers)
X_5 = Access to extension services, (Yes = 1, otherwise = 0)
X_6 = Access to credit, (Yes = 1, otherwise = 0)
X_7 = Cooperative membership, (Yes = 1, otherwise = 0)
e = Error Term

Henry Garrett's ranking technique was used to achieve objective (IV). Henry Garret's ranking technique was used to rank the preferences indicated by respondents on different factors (Ismanto & Arsyad, 2018). The technique helps to identify the most important factors influencing the respondents' production decisions. In this method, respondents are asked to rank all the factors, and the ranks obtained are converted into score values using the appropriate Garrett ranking formula:

Percent position = $\frac{100\,(Rij - 0.5)}{Nj}$ (5)

Where;

Rij = Rank given for the ith variable by the jth respondent.

Nj = Number of variables ranked by the jth respondent.

RESULTS AND DISCUSSION

Socioeconomic Characteristics of the Respondents in the Study Area

The socio-economic characteristics of the respondents include their age, household size, educational level, gender, farming experience, farm size, main occupation, monthly income, extension and credit access, market association and source of credit. In the Gwagwalada Area Council, the socio-economic characteristics of the respondents were summarized in Table 1.

According to the result in Table 1, the result shows that majority of the okra farmers in the study area were females (54.5%) while (45.5%) were males. This agrees with Offia et al. (2023) on high female participation in production and marketing of okra. The mean age of the farmers was 44 years**,** with most respondents (31.2%) falling within the 41–50 years age group**,** indicating that the farmers are largely in their active and productive years. The majority of the respondents are married (62.3%)**,** with an average household size of 8 persons**,** suggesting the availability of family labour for farming activities. This result is consistent with Ibitoye and Kolawole (2022), who also report high marriage rates and large household sizes among okra households, noting family labour as key. For the farming experience, okra farmers have an average of 13 years**,** indicating moderate familiarity with okra production practices. Experience is widely recognized as a proxy for tacit agricultural knowledge encompassing pest identification, soil management, and crop timing that accumulates over time and can mitigate production inefficiencies. This is consistent with the findings regarding Alabi et al. (2023). The majority of the okra farmers in the study area, (35.1%) have no formal education**,** while others possess primary (16.8%), secondary (27.3%), and tertiary education (20.8%). This aligns with the findings of Ahamefule, Oke, and Ebeleagu, (2024), who reported similar trends among okra marketers and producers. Farming is the major occupation for 48.0% of the respondents**,** while others engage in trading and civil service. These okra farmers represent a largely undereducated rural population for whom farming is a primary livelihood rather than a lifestyle choice. The results also reveal that the average monthly income is ₦84,320**,** with many farmers earning between ₦10,000 and ₦50,000 (40.3%). A large proportion of the farmers have access to credit (93.5%)**,** mainly from cooperative societies (46.8%) and microfinance banks (31.2%)**.** This near-universal credit access is a notable and policy-relevant finding, particularly in the context of Nigerian smallholder agriculture, where credit access is frequently cited as a major constraint. This agrees with Alabi et al. 2023 who reported similar sources as the major source of credit. The average farm size is 1.97 hectares**,** indicating that most farmers operate on a small-scale basis. This confirms the small-scale, fragmented nature of okra production in the study area. However, (70.0%) of the farmers do not have access to extension services**,** and (66.2%) are not members of farming associations**,** which may limit their access to improved agricultural information and support services.

Table 1: Socio-Economic Characteristics of Okra Farmers in the Study Area
Descriptive Statistics

Variables	**Frequency (n=77)**	**Percentage (%)**	Mean
Gender			
Male	35	45.5	
Female	42	54.5	
Age Distribution			
20-30	9	11.7	
31-40	23	29.8	
41-50	24	31.2	44
51-60	15	19.5	
61-70	6	7.8	
Marital Status			
Single	12	15.6	
Married	48	62.3	
Widowed	13	16.8	
Divorced	4	5.3	
Household Size			
1-5	21	27.4	
6-10	43	55.8	8
11-15	13	16.8	
Farming Experience			
1-10	27	35.1	
11-20	23	29.9	13
21-30	15	19.4	
31-40	12	15.6	
Educational Level			
No Formal Education	27	35.1	
Primary Education	13	16.8	

Variables	**Frequency (n=77)**	**Percentage (%)**	Mean
Secondary Education	21	27.3	
Tertiary Education	16	20.8	
Main Occupation			
Farming	37	48.0	
Trading	26	33.8	
Civil Service	14	18.2	
Monthly Income (₦)			
10,000 - 50,000	31	40.3	
51,000 - 100,000	19	24.6	84,320
101,000 - 150,000	22	28.6	
151,000 - 200,000	5	6.5	
Access to Credit			
Yes	72	93.5	
No	5	6.5	
Source of Credit			
Cooperative Society	36	46.8	
Microfinance Bank	24	31.2	
Friends/Relatives	11	14.3	
Others	6	7.7	
Farm Size			
Less than 1	61		
1-2	16	79.2	1.97
3-4	-	20.8	
Extension Service			
Yes	23	30.0	
No	54	70.0	
Farming Association			
Yes	26	33.8	
No	51	66.2	

Source: Computed from field data, 2025

Factors Influencing the Output of Okra Production in the Study Area

The factors influencing the output of okra production in the study area were achieved using the OLS regression, and the results are presented in Table 2. The model was highly significant overall ($p = 0.0000$), with an R-squared of 0.8175 indicating that the explanatory variables jointly accounted for approximately 81.75% of the variation in okra output among the okra farmers in the study area. Among the explanatory variables, two variables: farm size and extension access, were statistically significant.

The size of the farm was positive and statistically significant at the 1% level ($p>0.01$), suggesting that expansions in cultivated land area are linked to increased okra production. An increase of one hectare in farm size results in an anticipated output increase of 9.214 kg, assuming other factors remain constant. This outcome corresponds with production theory, as land is a fundamental factor of production; augmenting cultivated area permits farmers to enhance planting density and overall yield. Nonetheless, although a positive relationship is anticipated, the coefficient's value is somewhat moderate, indicating that the output benefits from land expansion may be constrained.

This may indicate diminishing marginal returns to land or the impact of other constraining factors, such as restricted access to quality inputs, labor, or irrigation. In smallholder systems, merely expanding farm size does not necessarily result in proportional increases in productivity if complementary inputs are not effectively employed. This finding aligns with Norboo and Dolma (2023), who reported varied patterns between land and output as a result of technology, land quality, and access to complementary inputs, implying that output in production requires more than mere land expansion.

Access to agricultural extension services was positively and statistically significant at the 10% level ($p > 0.1$), suggesting that farmers with such access produced approximately 2.263 kg more okra than those without, assuming other factors remain constant. This indicates that extension services contribute to increased output production, perhaps by facilitating better dissemination of agronomic practices, advising on input utilization, and approaches for pest and disease management (Mudassir et al. 2025; Ogunniyi, Fanifosi, Ajao, & Dlamini, 2018).

Table 2: Factors influencing the output of okra production in the Study Area

Explanatory Variable	**Coefficient**	**Std. Error**	**t-statistic**	**P-value**
Farm and production characteristics				
Farming experience (years)	0.0388	0.0711	0.55	0.587
Farm size (ha)	9.2142***	1.1468	8.03	0.000
Total labour use (man-days)	0.0235	0.0327	0.72	0.474
Seed quantity (kg)	-0.0026	0.9094	-0.00	0.998
Manure use (kg)	0.0462	0.2549	0.18	0.857

Explanatory Variable	Coefficient	Std. Error	t-statistic	P-value
Agrochemical units	-0.0571	0.4576	-0.12	0.901
Total labour cost (₦)	0.000025	0.0000315	0.79	0.430
Institutional factors				
Extension access	2.2628*	1.2949	1.75	0.085
Credit access	-1.0019	1.0648	-0.94	0.350
Cooperative membership	-1.8518	1.2445	-1.49	0.142
Constant	-0.0275	1.5822	-0.02	0.986
Diagnostics Statistics				
No of Observation	77			
R-squared	0.8175			
Adjusted R-squared	0.7899			
F-statistic	29.57			
Prob > F	0.0000			
Root MSE	4.3057			

***, and * stand for 1%, and 10% levels of significance
Source: Computed from field data, 2025

Total Factor Productivity of Okra Farmers in the Study Area
The total factor productivity (TFP) distribution of okra farmers in the study area is presented in Figure 1, and it indicates generally low productivity performance. The mean TFP of 0.732 and the median of 0.641 both fall below unity, suggesting that, on average, okra farmers were unable to fully recover the value of their input costs from output. Also, the median is lower than the mean, further indicating that a larger proportion of the okra farmers are clustered at the lower end of the productivity scale. The relatively large standard deviation (0.544) suggests substantial heterogeneity in productivity levels among the okra farmers. This indicates that while a majority perform poorly, a smaller group of farmers achieve relatively higher productivity, likely due to differences in access to inputs, management practices, or institutional support. The low and skewed TFP distributions are consistent with recent regional analyses documenting limited smallholder productivity growth and strong heterogeneity in yields. (Walker, 2024).

The distribution shows that 61 out of 77 farmers (79.2%) recorded TFP values below 1.0, implying that for most farmers, the value of output did not cover production costs. Only 16 farmers (20.8%) achieved TFP values equal to or greater than 1.0, indicating cost recovery or profitability. This pattern points to an unfavorable production condition within the study area. The low TFP in the study area can also be influenced by high input prices, low output prices, or market imperfections, which reduce the value of output relative to costs. The findings of Nyambo, Nyambo, Mavunganidze, and Nyambo (2022) corroborate that only a minority of farmers operate near or above the productivity frontier. Furthermore, the distribution is right-skewed, with most farmers concentrated between 0.00 and 1.00 and only a few high-performing farmers recording TFP values above 1.50, with a maximum of 2.500. This skewness highlights inequality in productivity performance and suggests the presence of outliers who can operate closer to or above the productivity frontier (Babalola, Alemoru, & Lawal, 2020)

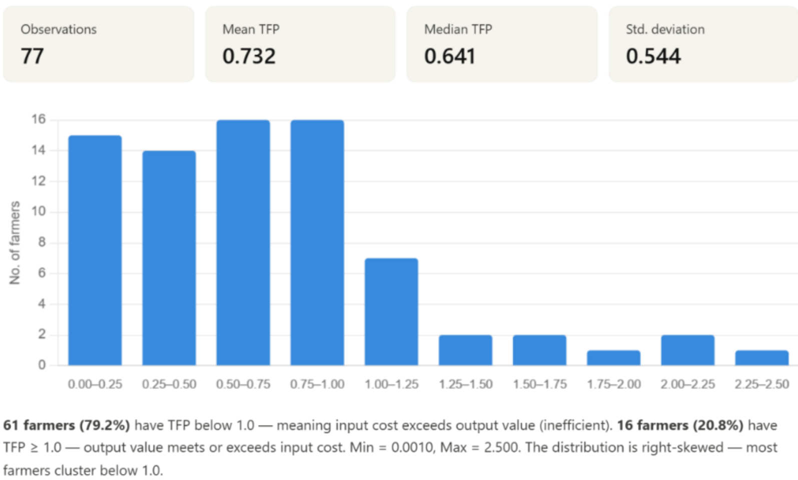

Figure 1: Productivity of Okra Production in the Study Area

Determinants of Okra Productivity in the Study Area
The determinants of okra productivity in the study area are estimated using the multiple regression and the results are presented in Table 3. The result revealed that the overall model was statistically significant (0.0003). However, the R-squared value of 0.3164 implies that the model explains about 31.6% of the variation in log total factor productivity (TFP), indicating a moderate explanatory power.
Farming experience was positive and significant at the 1% level (p> 0.01). This implies that each additional year of farming experience increased log TFP by 0.038 units. Experience enhances farmers' accumulated knowledge,

decision-making ability, and efficiency in input use. More experienced farmers are likely to better manage production risks, optimize input combinations, and respond effectively to agronomic challenges. Osabohien et al. (2024) reports that years of farming and familiarity with conservation/soil management practices are associated with better input use efficiency and higher yields.

Age, on the other hand, was negatively associated with productivity and significant at the 10% level (p>0.10). This suggests that older farmers tend to have lower productivity levels compared to younger farmers. Also, the negative effect of age may also be capturing lifecycle effects, where older farmers are less likely to intensify production or invest in productivity-enhancing inputs. These findings agree with Chiaka et al. (2022) that older farmers are less likely to adopt labor-intensive intensification or new technologies, which can reduce productivity.

Table 3: Determinants of Okra Productivity in the Study Area

Explanatory variable	Coefficient	Std. Error	t-statistic	P-value
Age (years)	-0.0208*	0.0117	-1.78	0.080
Farming experience (years)	0.0382***	0.0136	2.80	0.007
Education level	-0.0356	0.0747	-0.48	0.635
Household size	0.0563	0.0362	1.56	0.124
Extension access	-0.0674	0.1850	-0.36	0.717
Credit access	-0.2124	0.1683	-1.26	0.211
Cooperative membership	0.0080	0.1936	0.04	0.967
Constant	-8.1489***	0.4181	-19.49	0.000
Diagnostics Statistics				
No of observations	77			
R-squared	0.3164			
Adjusted R-squared	0.2471			
F-statistic	4.56			
Prob > F	0.0003			
Root MSE	0.6889			

***Significant at 1%, and *Significant at 10% Probability Levels
Source: Computed from field data, 2025

Constraints Affecting Okra Farmers in the Study Area

The result in Table 4 presents the constraints faced by okra farmers in Gwagwalada Area Council, ranked using the Garrett ranking technique. Pest and disease infestation emerged as the most severe constraint, with the highest weighted score. This is consistent with the well-established biological vulnerability of okra to a wide range of biotic stresses. This suggests that pest and disease outbreaks significantly reduce okra yield and quality, thereby affecting farmers' productivity and income. This agrees with the findings of Akinola (2025), that biotic stress can rapidly depress both yield and quality of okra production.

Price volatility ranked second, reflecting the exposure of smallholder okra farmers to unstable output markets. Okra is a perishable crop with a short post-harvest shelf life, making its market price highly sensitive to seasonal gluts and transportation disruptions. Price volatility discourages investment in quality inputs and expansion of cultivated area, as farmers cannot be assured of profitable returns even in high-yield seasons. Balana, Aghadi and Ogunniyi (2022) showed how post-harvest losses amplify price swings for perishable produce and, in the long run, reduce net returns for smallholder farmers. High cost of farm inputs ranked third, and despite the high credit access rate observed in this study, the cost of seeds, fertilizers, and agrochemicals remains prohibitive relative to farm income. This is consistent with the findings of Sanchi, Alhassan, and Sabo (2022), who reported how price shocks can reduce cultivated area and input use in a particular planting season. From the findings of this study, a sizable portion of the respondents had access to credit, and the lack of a credit facility ranked fourth among the constraints they faced. This paradox implies that although cooperatives and microfinance banks provide access to credit, the amount, terms, and promptness of such loans are inadequate to satisfy the real capital requirements of okra production. Lack of Storage ranked fifth, reflecting the perishability challenge. Without adequate cold storage or processing facilities, freshly harvested okra must be sold immediately, giving farmers very little price negotiation power and forcing distress sales during harvest gluts. This aligns with the findings of Ahamefule and Ebeleagu (2024). Other constraints faced were farm destruction and labor scarcity. This reflects the broader farmer-herder conflict dynamic that has become an acute agricultural security challenge across north-central Nigeria, including the FCT.

Constraints Affecting Okra Farmers in the Study Area

Constraints	Ranks Given by Okra Farmers							Total	Average	Rank
	1st * 79	2nd *66	3rd *57	4th * 50	5th*42	6th*34	7th *22			
High cost of farm Inputs	11 (869)	17 (1122)	25 (1425)	20 (1000)	3 (126)	1 (34)	0 (0)	4576	59.43	3rd
Lack of credit facility	1 (79)	5 (330)	9 (513)	24 (1200)	22 (924)	14 (476)		3566	46	4th
Labour scarcity	0 (0)	1 (66)	5 (285)	4 (200)	23 (966)	24 (816)	2 (44)	2773	.31	7th
Pest and disease infestation	24 (1896)	28 (1848)	11 (627)	7 (350)	3 (126)	2 (68)		4959	36.01	1st
Lack of Storage	11 (869)	6 (396)	6 (342)	9 (450)	8 (336)	20 (680)	20 (440)	3447	64.40	5th
Price volatility	27 (2133)	16 (1056)	15 (855)	6 (300)	7 (294)	4 (136)	2 (44)	4818	44.77	2nd

Constraints	Ranks Given by Okra Farmers							Total	Average	Rank
	1st * 79	2nd *66	3rd *57	4th * 50	5th*42	6th*34	7th *22			
Farm destruction by Herdsmen	3 (237)	4 (264)	6 (342)	7 (350)	11 (462)	12 (408)		2811	62.57	6th

Source: Computed from field data, 2025

CONCLUSION

This study assessed the output determinants and productivity of smallholder okra production in Gwagwalada Area Council, FCT, Nigeria and established that the okra farmers were unable to recover production costs from the value of their output. Farm size and access to extension services were significant positive determinants of okra output, while farming experience positively influenced productivity. Pest and disease infestation, price volatility and high input costs were challenges faced, and tackling them through targeted extension reform, affordable input delivery, and integrated pest management will be essential to improving output and productivity among smallholder okra farmers in the study area.

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