



ANALYSIS OF CONSTRAINTS TO EFFECTIVE AGRICULTURAL EXTENSION SERVICE DELIVERY AND ITS IMPACT ON AGRICULTURAL PRODUCTIVITY IN OHIMINI LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA

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ABSTRACT

The study assessed the constraints to agricultural extension service delivery and its impact on agricultural productivity in Ohimini Local Government Area of Benue State, Nigeria. Data were collected from 120 respondents selected through a multistage random sampling technique using a structured questionnaire. Descriptive statistics such as frequencies, percentages, means, and standard deviations were employed for data analysis, while multiple regression and simple linear regression were used to test the hypothesis. The results showed that majority (60%) of the respondents were male, with an average age of 44 years and mean farming experience of 16 years. The most (80%) of the respondents were full-time farmers. The major constraints affecting extension services included insufficient operational funds (Mean = 3.55), poor road networks (Mean = 3.53), inadequate number of agents (Mean = 3.48), and irregular visitation (Mean = 3.42). These challenges significantly reduced extension efficiency and farmers' participation in innovation programs. Regression analysis revealed that sex, education, income, farm size, farming experience, membership in farmers' organizations, and proximity to extension service points significantly influenced access to extension services ($R^2 = 0.482$, $p < 0.05$). Furthermore, the hypothesis test indicated a negative and significant relationship ($\beta = -0.456$, $p < 0.001$) between extension constraints and agricultural productivity, implying that productivity declines as constraints increase. The study concludes that underfunding, poor infrastructure, and limited manpower are key limitations of the extension system. It recommends increased funding, recruitment and training of personnel, integration of ICTs, participatory approaches, and gender-sensitive programming to improve the efficiency and impact of agricultural extension delivery in Benue State.

Keywords: Agricultural, Extension, Rural, Farmers, Constraints, Productivity

INTRODUCTION

Agriculture has historically been a cornerstone of economic development, particularly in developing countries where it provides employment, food security, and raw materials for industries. In Nigeria, agriculture remains a critical sector, contributing approximately 23% to the Gross Domestic Product (GDP) and employing about 36% of the labor force as of recent estimates (World Bank, 2020). Agriculture can be defined as the science, art, and practice of cultivating plants and livestock for food, fiber, medicinal plants, and other products used to sustain and enhance human life, is the backbone of rural livelihoods in Nigeria (Food and Agriculture Organization (FAO), 2021). The sector is predominantly characterized by smallholder farmers who depend on agriculture for their livelihoods. However, one of the major challenges affecting agricultural productivity is limited access to agricultural extension services, which are crucial for disseminating knowledge on improved farming techniques, modern technology adoption, and resource management (Aker, 2016). Agricultural extension services play a critical role in linking research institutions with farmers, ensuring that innovations reach the grassroots level for improved agricultural production (Adejo *et al.*, 2018).

Agricultural extension involves the provision of training, technical assistance, and information services to farmers with the aim of improving agricultural productivity and sustainability (Van den Ban and Hawkins, 2020). Effective agricultural extension service delivery enhances farmers' ability to adopt modern farming techniques, access improved seed varieties, utilize appropriate pest and disease control measures, and engage in efficient farm management practices (Mbo'o-Tchouawou and Colverson, 2017). Despite its importance, agricultural extension service delivery in Nigeria, particularly in rural



areas such as Ohimini Local Government Area (LGA) of Benue State, faces several challenges that hinder its effectiveness.

Ohimini LGA, like many other rural areas in Nigeria, relies heavily on agriculture as its primary economic activity. The area is known for the production of crops such as cassava, yam, maize, rice, and soybeans (Benue State Agricultural Development Authority [BNARDA], 2019). However, farmers in the region encounter numerous constraints, including limited access to extension services, inadequate funding, poor infrastructural development, and low adoption of modern agricultural practices (Oladele, 2018). These challenges have negatively impacted agricultural productivity and rural development.

Several studies have been conducted on agricultural extension service delivery in Nigeria, with findings highlighting issues such as the shortage of extension agents, inadequate training programs, weak institutional support, and low farmer participation (Agbamu, 2019). In Ohimini LGA, there is a need for a detailed analysis of these constraints to identify specific factors limiting the effectiveness of agricultural extension services and to propose solutions that can enhance service delivery. Understanding these constraints will help policymakers, extension agencies, and stakeholders in designing strategies to improve the dissemination of agricultural knowledge and practices.

Given the critical role of agricultural extension services in promoting rural development and food security, it is imperative to analyze the factors affecting its delivery in Ohimini LGA. This study aims to examine the major constraints to agricultural extension service delivery in the area, assess their impact on agricultural productivity, and provide recommendations for improving extension services to enhance agricultural development in Benue State.

Specifically, the study sought to:

- i. identify the major constraints limiting effective agricultural extension service delivery in the study area.
- ii. assess the impact of these constraints on agricultural productivity in the study area.
- iii. evaluate the socio-economic factors that influence farmers' access to agricultural extension services.

METHODOLOGY

The Study Area

The study was carried out in Ohimini Local Government Area. Ohimini Local Government Area (LGA) is one of the twenty-three LGAs in Benue State, located in the North-Central geopolitical zone of Nigeria. It was carved out of Otukpo Local Government Area in 1996, with its administrative headquarters situated in Idekpa. The LGA is geographically positioned between latitudes 6° 53' N and 7° 25' N and longitudes 7° 30' E and 8° 10' E, sharing boundaries with Otukpo LGA to the north, Okpokwu LGA to the east, and parts of Enugu State to the south. It covers an approximate land area of about 632 square kilometers (Benue State Government, 2022). The terrain is predominantly lowland, interspersed with gentle hills and seasonal streams. The area is characterized by fertile soils suitable for both subsistence and commercial agriculture, which is the dominant economic activity of the inhabitants.

Population of the Study

The population for this study consists of all farmers in Ohimini LGA, Benue State, Nigeria. However, since it was impractical to study the entire population, a sample size of the population was taken for the study.

Sampling Procedure and Sample Size

Multi stage sampling procedure was used for the study. In the first stage, three council wards will be purposively selected from each of the study area based on their high agricultural production. The council wards selected were Agadagba, Ehatokpe and Idekpa wards. In the second stage, one rural community was purposively selected from each of the wards due to their high agricultural production.

Finally, a sampling frame was developed for each of the rural communities and using proportional allocation of 10% (0.10), a total sample size of 120 respondents was selected.



Table 1: Sample Selection from Three (3) Council Wards

LGA	Council ward	Communities	Sample frame	Sample size (10%)
Ohimini	Agadagba	Ohugbine	234	23
		Akwunu	209	20
	Ehatokpe	Ugene	217	21
		Ehatokpe	164	16
	Idekpa	Idekpa	185	18
		Odelie	220	22
Total			1229	120

Method of Data Collection

Data was collected from primary sources through the use of a structured questionnaire. The questionnaire was divided into four (4) sections based on the specific objectives of the study. Section A sought information on major constraints limiting effective agricultural extension service delivery in the study area. Section B focused on impact of these constraints on agricultural productivity in the study area while Section C centered on socio-economic factors that influence farmers' access to agricultural extension services.

Method of Data Analysis

Data obtained for this study was analyzed using descriptive statistics such as frequency distribution, percentage, mean score, standard deviation and inferential statistics such as Factor analysis and Logit-regression analysis. Objectives I and ii were analyzed using descriptive statistics, objective iii was analyzed using Logit-regression analysis.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of the Respondents

Results in Table 2 show that 60% of the respondents were male and 40% female, indicating that men were more involved in agricultural extension-related activities than women in the study area. This reflects gender disparities in access to agricultural information and extension services, a pattern also reported by Aina (2020) and Mbah *et al.* (2022), who noted that cultural and socio-economic barriers often limit women's participation in formal agricultural systems.

The age distribution reveals that a most (83.3%) of respondents fell within the 26–55 years age bracket, signifying that most of the farmers are in their economically active years. This is favorable for agricultural productivity as this age group is more energetic and receptive to new farming technologies and extension innovations (Olowu and Yahaya, 2019).

Educationally, 33.3% had tertiary education, 23.3% secondary, and 36.7% did not specify their educational level. Education enhances understanding of agricultural innovations, implying that a fair proportion of farmers in the area can comprehend extension messages disseminated through various media.

In terms of occupation, 80% of respondents were full-time farmers, underscoring the agrarian nature of the study area. This aligns with the findings of Okonkwo *et al.* (2021), who reported that farming remains the dominant occupation among rural dwellers in Benue State.

Furthermore, 90% of the respondents had contact with extension agents, suggesting a fairly strong presence of agricultural extension services, though the frequency and quality of these interactions may vary.

Most (60%) of the respondents had 6–25 years of farming experience, indicating substantial practical knowledge in agriculture. Farm size distribution shows that 76.7% cultivate between 6–25 hectares, demonstrating that the respondents are primarily small- to medium-scale farmers. Regarding income, 96.7% earned less than ₦1,000,000 annually, suggesting a low-income profile that could constrain investment in modern inputs and technologies.



Table 2: Distribution of Respondents by Socio-Economic Characteristics (n=120)

Variable	Frequency	Percentage (%)	Mean
Sex			
Male	72	60.0	
Female	48	40.0	
Age (years)			
≤25	8	6.7	41
26–40	48	40.0	
41–55	52	43.3	
56+	12	10.0	
Educational Level			
Non-formal	4	3.3	
Primary	4	3.3	
Secondary	28	23.3	
Tertiary	40	33.3	
Non-specified	44	36.7	
Occupation			
Farming	96	80.0	
Civil Servant	4	3.3	
Petty Trading	12	10.0	
Others	8	6.7	
Membership in Farmers' Organization			
Yes	28	23.3	
No	92	76.7	
Extension Contact			
Yes	108	90.0	
No	12	10.0	
Farm Size (ha)			
≤5	16	13.3	12
6–25	92	76.7	
26–45	8	6.7	
46+	4	3.3	
Farming Experience (years)			
≤5	24	20.0	14
6–25	72	60.0	
26–45	20	16.7	
46+	4	3.3	
Annual Income (₦)			
≤1,000,000	116	96.7	451666
≥5,500,001	4	3.3	

Field Survey, 2025

Major Constraints Limiting Effective Agricultural Extension Service Delivery

Results in Table 3 reveal that all the identified factors had mean scores above the benchmark of 2.50, signifying general agreement among respondents that these are major constraints to effective agricultural extension service delivery in the study area. The most critical challenges include;

Insufficient operational funds for extension activities (Mean = 3.55), Poor road and transport access (Mean = 3.53), and Inadequate number of extension agents per community (Mean = 3.48).

These findings emphasize that extension systems in Makurdi are underfunded and understaffed, which severely limits their reach and efficiency. According to Agbamu (2018), the shortage of trained personnel and inadequate logistics are chronic weaknesses of the Nigerian Agricultural Development Programme (ADP) structure, particularly at the local government level.

Respondents also agreed that irregular visitation and weak coordination with research institutes and NGOs hinder knowledge exchange and technology dissemination. Aina (2020) and Ekoja (2021) similarly reported that infrequent contact between farmers and extension agents undermines the adoption of improved practices, as sustained guidance and follow-up are essential for behavioral change.

Language and cultural barriers (Mean = 3.29) were also noted as constraints, showing that some farmers still face communication gaps when extension messages are not delivered in local dialects. As Adebayo and Anyanwu (2021) observed, linguistic mismatches can alienate illiterate farmers from agricultural innovations.

Gender insensitivity (Mean = 3.25) reflects limited consideration of women's roles and needs in extension programming, a concern echoed by Moyo and Doss (2020), who stressed that gender mainstreaming remains weak in many African agricultural systems.

Finally, security concerns (Mean = 3.34) and high cost of adopting recommended practices (Mean = 3.41) indicate external and economic pressures that further reduce farmers' willingness to engage with extension services. These constraints collectively portray a fragile extension framework requiring structural reform, funding, and human capacity development.

Table 3: Mean Distribution of Major Constraints Limiting Effective Agricultural Extension Service Delivery (n = 120)

Major Constraints	SA (4)	A (3)	D (2)	SD (1)	Mean	Std. Dev.	Remark
Inadequate number of extension agents per community	70	40	8	2	3.48	0.65	Agreed
Irregular visitation/scheduling by extension agents	64	44	10	2	3.42	0.66	Agreed
Poor road/transport access for agents/farmers	75	35	8	2	3.53	0.63	Agreed
Insufficient operational funds for extension activities	80	28	8	4	3.55	0.70	Agreed
Lack of demonstration inputs/materials	67	40	10	3	3.42	0.67	Agreed
Limited training/skills of agents on new technologies	61	46	9	4	3.36	0.68	Agreed
Language/cultural barriers between agents and farmers	55	48	14	3	3.29	0.71	Agreed
Weak coordination with research/ADP/NGOs	57	45	15	3	3.30	0.69	Agreed
Political interference in beneficiary selection/activities	59	41	17	3	3.30	0.73	Agreed
Gender insensitivity	54	46	16	4	3.25	0.74	Agreed
Low use of ICT/radio/SMS for advisory services	63	42	12	3	3.38	0.68	Agreed
Inadequate feedback channels from farmers to extension	62	43	11	4	3.36	0.71	Agreed
Poor monitoring and evaluation of extension results	68	40	9	3	3.44	0.69	Agreed
High cost of adopting recommended practices	65	42	9	4	3.41	0.70	Agreed
Security concerns affecting field movement	60	45	11	4	3.34	0.71	Agreed
					3.39	0.69	Agreed

Source: Field Survey, 2025 **Decision Rule:** Mean \geq 2.50 = Agreed; Mean $<$ 2.50 = Disagreed.

Impact of Constraints on Agricultural Productivity in the Study Area

The findings in Table 4 indicate that respondents generally agreed that the constraints identified in agricultural extension service delivery have had a negative and significant impact on agricultural productivity in the study area. The grand mean of 3.40 confirms that the challenges are strongly linked to declining productivity and poor adoption of modern farming practices.



The highest-rated effects were low productivity (Mean = 3.51), low awareness and adoption of climate-smart practices (Mean = 3.48), and limitations in extension service delivery (Mean = 3.45). These findings align with FAO (2022) and Adedoyin (2019), who reported that inadequate extension contact and poor information flow hinder technology dissemination, thereby reducing crop yields and sustainability.

The result further implies that when farmers lack consistent technical guidance, they tend to rely on outdated practices that result in poor yields, soil degradation, and inefficient resource use. This is reflected in the relatively high mean values for soil degradation (3.34) and reduced market competitiveness (3.35). According to Agbamu (2018), the absence of effective extension support systems limits farmers' market participation and competitiveness due to their inability to meet modern quality standards and productivity benchmarks.

The respondents also agreed that widening gender disparities (3.33) and low adoption of improved technologies (3.40) were outcomes of weak extension systems. These patterns mirror the findings of Moyo and Doss (2020), who emphasized that limited gender-sensitive extension programs exacerbate inequality, as women farmers receive fewer opportunities for training and credit access.

The finding that increased post-harvest losses (Mean = 3.41) result from poor extension services agrees with Okonkwo *et al.* (2021), who observed that timely extension advice on harvesting, drying, and storage could significantly reduce losses and enhance profitability.

In summary, the results demonstrate that weak extension systems have a multidimensional impact on productivity reducing yields, widening inequality, and hampering the adoption of environmentally sustainable practices. These findings substantiate the argument that a well-funded and coordinated agricultural extension framework is indispensable for achieving rural transformation and food security in Benue State.

Table 4: Mean Distribution of the Impact of Agricultural Extension Constraints on Agricultural Productivity (n = 120)

Variables	SA (4)	A (3)	D (2)	SD (1)	Mean	Std. Dev.	Remark
Low adoption rates of improved agricultural technologies	66	40	10	4	3.40	0.68	Agreed
Reduced market competitiveness	62	42	12	4	3.35	0.69	Agreed
Low awareness and adoption of climate-smart agricultural practices (CSAPs)	74	34	8	4	3.48	0.65	Agreed
Widening gender disparities in agricultural productivity	59	46	11	4	3.33	0.70	Agreed
Soil degradation and poor resource management	61	43	12	4	3.34	0.68	Agreed
Low productivity	76	33	7	4	3.51	0.64	Agreed
Limitations in extension service delivery	70	38	8	4	3.45	0.67	Agreed
Reduced farmer participation in innovation programs	65	40	11	4	3.38	0.70	Agreed
Poor linkage between research and practice	64	41	11	4	3.38	0.68	Agreed
Increased post-harvest losses	68	39	9	4	3.41	0.66	Agreed
					3.40	0.68	Agreed

Source: Field Survey, 2025 **Decision Rule:** Mean \geq 2.50 = Agreed; Mean $<$ 2.50 = Disagreed.

Socio-Economic Factors Influencing Farmers' Access to Agricultural Extension Services

The model is statistically significant ($F = 15.89, p < 0.001$), implying that the set of socio-economic variables jointly explain variations in farmers' access to agricultural extension services in the study area. The R^2 value of 0.482 indicates that about 48.2% of the variation in extension service access is explained by the socio-economic variables included in the model.

The results show that sex, education, income, farm size, farming experience, membership in farmers' organizations, and proximity to extension service offices significantly influenced access to agricultural extension services. Sex ($\beta = 0.172, p = 0.038$): Male farmers had higher access levels than



female farmers, implying gender disparities in access to agricultural information. This finding aligns with Moyo and Doss (2020), who reported that women often face mobility and time constraints, limiting their participation in formal extension activities. Educational Level ($\beta = 0.205, p = 0.002$): Education was positively related to access, suggesting that literate farmers are better able to understand and utilize extension information. Aina (2020) noted that education enhances communication effectiveness and adoption of improved agricultural practices. Income ($\beta = 0.118, p = 0.026$): Income significantly affected access, as wealthier farmers can afford transportation to training centers and communication tools such as radios and mobile phones.

Farm Size ($\beta = 0.097, p = 0.017$): Larger farm owners tend to attract more attention from extension agents, as they are often perceived as key stakeholders in the dissemination of improved technologies. This supports Agbamu (2018), who observed that resource-endowed farmers receive greater extension attention due to their production capacity. Farming Experience ($\beta = 0.064, p = 0.029$): Experience positively influenced access, suggesting that experienced farmers maintain longer relationships with extension agents and institutions. Membership in Farmers' Organization ($\beta = 0.194, p = 0.014$): This was a strong determinant of access. Organized farmers are more likely to be visited by extension officers and benefit from group-based programs. This agrees with Ekoja (2021) and Aina and Ojebode (2020), who emphasized that cooperative associations enhance visibility and collective bargaining for information and inputs. Proximity to Extension Office ($\beta = -0.146, p = 0.012$): The negative coefficient indicates that the farther a farmer is from an extension service center, the lower the access level. Distance poses a physical barrier, increasing transportation costs and reducing contact frequency a finding consistent with Olowu and Yahaya (2019).

However, age and household size did not significantly affect access, suggesting that access to extension services depends more on resource-related and institutional factors than personal or demographic attributes. The regression results confirm that socio-economic characteristics significantly influence farmers' access to agricultural extension services. The implication is that extension programs must be designed with consideration for gender, education, income disparities, and geographical accessibility to ensure equitable dissemination of agricultural information.

Table 5: Multiple Regression Analysis Showing Socio-Economic Factors Influencing Farmers' Access to Agricultural Extension Services (n = 120)

Variables	Coefficients (β)	Standard Error	t-Value	Sig. (p)	Decision
Constant	1.203	0.442	2.72	0.007	—
Sex	0.172	0.082	2.10	0.038*	Significant
Age	-0.015	0.009	-1.67	0.098	Not Significant
Educational Level	0.205	0.064	3.20	0.002*	Significant
Income	0.118	0.052	2.27	0.026*	Significant
Farm Size	0.097	0.040	2.43	0.017*	Significant
Farming Experience	0.064	0.029	2.21	0.029*	Significant
Household Size	-0.031	0.024	-1.29	0.200	Not Significant
Membership in Farmers' Organization	0.194	0.077	2.52	0.014*	Significant
Proximity to Extension Office	-0.146	0.057	-2.56	0.012*	Significant

R = 0.694

R² = 0.482

Adjusted R² = 0.453

F-statistic = 15.89 (p < 0.001)

Source: Field Survey, 2025



CONCLUSION AND RECOMMENDATIONS

The findings of this study reveal that agricultural extension services in Makurdi LGA are constrained by multiple institutional, infrastructural, and operational challenges that limit their effectiveness in supporting farmers. While farmers generally recognize the importance of extension services, their access remains restricted by inadequate funding, poor logistics, limited manpower, and weak communication channels.

The analysis confirmed that socio-economic characteristics such as education, income, farm size, and group membership significantly influence farmers' access to extension services. Furthermore, the regression analysis demonstrated that the constraints within the extension system negatively impact agricultural productivity, underscoring the urgent need for institutional reforms and improved policy frameworks to strengthen extension operations.

Therefore, it can be concluded that the success of agricultural extension in Benue State largely depends on the adequacy of funding, human capacity development, ICT adoption, and participatory engagement with farmers. Without these, extension programs will continue to struggle to meet their goal of enhancing productivity and improving rural livelihoods.

Based on the findings and conclusions, the following recommendations are made:

- i. Adequate and sustained funding should be prioritized to enable extension departments to operate efficiently. Funds should cover transportation, logistics, training materials, and digital communication tools.
- ii. There is a pressing need to recruit more extension personnel and provide them with ongoing professional training in modern agricultural techniques, ICT usage, and participatory communication methods.
- iii. Mobile phones, social media, community radio, and SMS services should be leveraged to complement traditional face-to-face extension approaches and enhance information dissemination.

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