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Traditional Agricultural Practices and Household Food Security: Evidence from Farming Households in Akure South, Ondo State, Nigeria

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ABSTRACT

This study analyzed the role of traditional agricultural practices in household food security among farming households in Akure South Local Government Area, Ondo State, Nigeria. Primary data were collected from 120 farming households using a multistage sampling technique and structured questionnaires. Data were analyzed using descriptive statistics, the household food expenditure approach, and a binary logit regression model. The findings revealed that 79.2% of households were food secure, while 20.8% were food insecure. Farming households were predominantly male-headed, with a mean age of 41 years and an average farming experience of 17 years. Common traditional practices included mixed cropping, crop rotation, shifting cultivation, bush fallowing, and traditional irrigation. Regression results indicated that household size, years of farming experience, and shifting cultivation had a significant ($p < 0.05$) influence on household food security. Major constraints included limited government support, inadequate access to farm machinery, high cost of farm inputs, limited access to credit, land constraints, and climate-related challenges. The study concludes that traditional agricultural practices play a significant role in enhancing household food security. Strengthened policy support, income diversification, access to credit, and targeted capacity-building initiatives are recommended to sustain food-secure outcomes among farming households.

1. Introduction

Food security is a fundamental human right and a cornerstone of sustainable development. Globally, the achievement of food security remains a major challenge due to population growth, environmental degradation, climate change, and socioeconomic disparities. In Africa, over 21% of the population experienced acute hunger in 2020, double the rate observed in other regions, while more than 50% of Africans faced moderate to severe food insecurity (Gebre & Rahut, 2021).

West and East Africa exhibit even higher prevalence rates, with approximately 68% and 65% of their populations, respectively, affected by moderate to severe food insecurity (FAO et al., 2021). Despite advances in agricultural production and food systems, ensuring sufficient access to nutritious food for the world's population of over 8 billion remains a critical concern. While some regions have made progress in reducing hunger and malnutrition, developing countries, including Nigeria, continue to experience persistent and acute food insecurity (Ogunniyi et al., 2021).

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Nigeria, despite its rich natural resources and agricultural potential, faces significant challenges in guaranteeing consistent access to safe and nutritious food. With a population exceeding 200 million, Nigeria is the most populous nation in Africa and the fourth globally. Yet, a substantial proportion of its population experiences food insecurity, which is influenced by both food availability and accessibility constraints. The FAO et al., (2021) defines food security as the state in which all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and preferences for an active and healthy life. The United States Department of Agriculture (Bickel et al., 2000) similarly emphasizes that food security entails consistent access to adequate, safe, and nutrient-dense foods obtained through socially acceptable means. Olowogbayi et al. (2022) further stress that food security encompasses both the availability of food and the ability of all individuals to access it at all times.

In Nigeria, food security is commonly assessed through four interrelated dimensions: availability, accessibility, utilization, and stability. Despite extensive arable land and diverse agro-climatic zones suitable for crops and livestock, agriculture in Nigeria is predominantly subsistence-based, with limited access to modern technologies. Consequently, domestic production is insufficient to meet demand, resulting in significant imports of staples such as rice and wheat. Approximately 40% of Nigerians live below the national poverty line, limiting household ability to afford adequate food (FAO, 2020). Poor infrastructure, including inadequate roads and storage facilities, further hinders the distribution of food from production to consumption centers. Food utilization is also affected by nutritional quality; high levels of stunting, wasting, and malnutrition among children under five and women of reproductive age indicate systemic challenges in food quality and dietary diversity (WHO, 2018). Cultural practices, food taboos, limited knowledge of nutrition, and food preparation methods exacerbate these challenges.

Traditional, social, and cultural practices are closely intertwined with food security among Nigerian agricultural households. Cultural norms and beliefs shape agricultural production, food preparation, and consumption, thereby influencing household food availability, accessibility, utilization, and stability. For instance, households may allocate income to social obligations such as festivals, marriages, religious rites, or education, rather than diversifying diets or improving food security (Adekunle et al., 2012). Culture also influences agricultural practices; many households continue to rely on age-old subsistence farming techniques passed down through generations. Such practices may prioritize household consumption over market sales and discourage adoption of mechanization, crop diversification, or modern technologies that could enhance productivity (Byaruhanga & Opedum, 2008).

Gender dynamics further shape household food security. Women, who are often responsible for producing, processing, and preparing food, frequently have limited access to land, credit, and agricultural inputs due to cultural norms. These disparities affect decision-making and resource allocation, as women focus primarily on subsistence crops while men control cash crops and financial resources. Consequently, women are disproportionately vulnerable to food insecurity and micronutrient deficiencies (FAO, 2018). Understanding the intersection of culture, traditional agricultural practices, and gender dynamics is therefore critical for addressing food security challenges in Nigerian farming households.

1.1. Problem statement

Agriculture remains the primary source of livelihood for rural households in Nigeria; however, food insecurity persists despite the long history of indigenous and culturally rooted farming practices. While smallholder farmers rely on traditional knowledge—including land inheritance systems, gendered labor roles, crop selection norms, and local food preparation techniques—these practices do not always guarantee sufficient food supply for households, especially in the context of climate variability, economic instability, and rapid social change (Ademola & Oluyede, 2024). In Ondo State, many farming households continue to depend heavily on inherited and culturally embedded agricultural practices. Nevertheless, a significant proportion remain moderately or severely food insecure due to low productivity, limited access to modern inputs, and fluctuating market conditions (Ojo, 2025). Despite these insights, there is a critical lack of localized empirical evidence for Akure South Local Government Area, where rapid urbanization, land-use changes, and evolving cultural patterns may be transforming traditional farming practices and their impact on household food security. The absence of context-specific data constrains policymakers, agricultural extension services, and development practitioners from designing interventions that are both effective and culturally appropriate. This knowledge gap limits the potential to enhance food availability, accessibility, utilization, and stability among rural households. Therefore, understanding how cultural practices in agriculture influence food security is essential for developing targeted strategies that address both socio-cultural and structural determinants of food insecurity in Akure South Local Government Area, Ondo State, Nigeria. Therefore, this study **aims to investigate the role of cultural practices in agriculture and their influence on household food security among farming households in Akure South Local Government Area, Ondo State, Nigeria:**

1. What are the socio-economic characteristics of farming households in Akure South Local Government Area, Ondo State, Nigeria?

2. What is the household food security status among farming households in the study area?

3. How do socio-economic characteristics and cultural practices influence household food security among farming households in the study area?

4. What are the key constraints affecting the achievement of household food security among farming households in the study area?

1.2 Objectives of the Study

The main objective of this study is to **investigate the socio-economic and traditional practices determinants of household food security among farming households in Akure South Local Government Area, Ondo State, Nigeria.** The study specifically aims to:

1. To analyze the socio-economic characteristics of farming households in the study area.

2. To assess the household food security status among farming households in the study area.

3. To examine the influence of socio-economic characteristics and traditional practices on household food security among farming households in the study area.

4. To identify the key constraints, limiting the achievement of household food security among farming households in the study area.

1.3 Justification of the Study

Food security remains one of the most pressing developmental challenges in Nigeria, particularly at the grassroots level, where a significant proportion of the population depends on agriculture for livelihood and sustenance. Despite numerous governmental and non-governmental interventions aimed at enhancing agricultural productivity and rural welfare, many farming households continue to experience food insecurity due to a combination of socio-economic and cultural factors. This study seeks to investigate these underlying variables within the context of Akure South Local Government Area, Ondo State, an area notable for both its agricultural potential and diverse socio-cultural composition.

The findings of this study are expected to provide multiple benefits. For farming households, the study will illuminate the socio-economic and cultural determinants that influence household food security, helping them understand why some households achieve food security while others do not, even when engaging in similar agricultural practices. For policymakers, government agencies, and non-governmental organizations, the study offers context-specific, data-driven insights into non-agricultural factors, such as household socio-economic characteristics and cultural practices, that may undermine food security. Such insights can inform the design of more targeted and effective programs and interventions that reflect the lived realities of rural farming communities.

Additionally, the study contributes to the broader academic discourse on sustainable rural development and resilience. By providing empirical evidence on the socio-economic and cultural dimensions of food security, it enhances understanding of the complex interactions between culture, livelihood, and food access in rural Nigeria. The study also serves as a valuable reference for researchers seeking to investigate similar issues in other contexts, thereby supporting future scholarship on food security and rural development.

2. Literature review

Food security, defined as consistent access to sufficient, safe, and nutritious food for an active and healthy life, remains a critical global challenge, particularly in Africa, where over 50% of the population experiences moderate to severe food insecurity (FAO, 2021; Gebre, 2021; WHO, 2018). In Nigeria, despite abundant arable land and diverse agro-climatic zones, food insecurity persists due to low agricultural productivity, poverty, limited access to inputs, poor infrastructure, and reliance on subsistence farming (FAO, 2020; Ogunniyi et al., 2021; WHO, 2018).

Cultural and traditional agricultural practices—including mixed cropping, crop rotation, bush fallowing, and traditional irrigation—play a crucial role in household food availability and sustainability (Byaruhanga & Opedum, 2008). However, these practices alone may not ensure food security under contemporary challenges such as climate change, market instability, and urbanization (Oderinde, 2022). Cultural norms, such as land inheritance systems, gendered labor roles, and spending on social obligations, further influence the production, consumption, and distribution of food within households (Ademola & Oluyede, 2024).

Gender dynamics significantly shape food security outcomes. Women, primarily responsible for food production and preparation, often face restricted access to land, finance, and agricultural inputs, while men dominate cash crops and household decision-making, increasing women's vulnerability to food insecurity (FAO, 2018).

Studies in Ondo State indicate that many households continue to rely on inherited farming practices, yet a considerable proportion remain food insecure due to low productivity, inadequate inputs, and unstable markets (Ojo, 2025). Despite the recognized importance of indigenous knowledge, there is limited empirical evidence on how cultural practices specifically influence household food security in Akure South Local Government Area, where rapid urbanization and evolving socio-cultural patterns may be altering traditional agricultural practices.

This highlights a critical knowledge gap, emphasizing the need for localized, context-specific research that integrates socio-economic and cultural factors to inform effective interventions for improving food security among rural farming households.

3. Research Methodology

3.1 The Study Area

The study was conducted in Akure South Local Government Area (LGA) of Ondo State, located in the southwestern part of the state, covering approximately 152 square kilometers. Akure South hosts the capital city of Ondo State, Akure, and is situated at approximately 7°12′27″N and 5°11′18″E, about 700 km southwest of Abuja and 311 km north of Lagos. The LGA has a high population density, with over 387,000 residents, and serves as a significant commercial and administrative hub within the state. The area comprises several towns and villages, including Akure, Aponmu, Gbogi/Ikan, Ijomu/Obanla, Lisa, Odo Petu, and Oke Aro/Uro, organized into multiple wards as delineated by the Independent National Electoral Commission (INEC). The presence of primary, secondary, and tertiary institutions, notably the Federal University of Technology, Akure (FUTA), contributes to a youthful and relatively educated population.

Although the LGA is experiencing increasing urbanization, many peri-urban and outlying communities continue to engage in subsistence and small-scale farming, making it an appropriate context for studying household food security. Key crops cultivated include cassava, maize, yam, vegetables, plantain, and, in some areas, cocoa. Residents also engage in livestock rearing and fishing, which supplement household income and contribute to food availability.

Akure South LGA represents a strategic location for food security research due to its diverse socio-economic landscape, mix of urban and rural livelihoods, transitional economy, and rich cultural practices related to agriculture and food consumption. The area also benefits from exposure to agricultural extension services and non-governmental organization (NGO) programs, which further influence local food security outcomes.

3.2 Sampling Technique

The study employed a **multistage sampling technique** to select respondents. In the first stage, **Akure South Local Government Area, Ondo State**, was purposively selected due to its combination of urban

and peri-urban communities, agricultural potential, and socio-cultural diversity. In the second stage, **six communities**—Aponmu, Aule, Oke-Odu, Oke Obere, Igisogba, and Adofure were randomly selected from within the LGA. In the third stage, **twenty farming households** were randomly selected from each community, yielding a total sample of **120 respondents** for the study.

3.3 Data Analysis

Data for analysis were generated primarily using interview scheduled and structured questionnaires administered to one hundred and twenty (120) respondents selected for the study. Data analysis was achieved using descriptive statistics, the Expenditure Approach Method and Binary Logit regression model.

3.4 Analytical Technique

Data for the study were analyzed using both descriptive and inferential statistics. Objectives (i) and (iv) were analyzed using descriptive statistics such as mean, percentages and frequency distribution. Objective (ii) was analyzed using Expenditure Approach Method while Objective (iii) was analyzed using Binary Logit regression model

3.5 Model Specifications

3.6 Expenditure Approach Method

The expenditure approach was used to classify farming households into food secure and food insecure categories, enabling the researcher to determine the food security status of each household.

The Expenditure Approach is explained as:

$$Fi = \frac{per\ capita\ food\ expenditure\ for\ the\ ith\ household}{\frac{2}{3}\ mean\ per\ capita\ food\ expenditure\ of\ all\ households} \text{----------.----------} \quad (i)$$

Where:

Fi = food security index

When Fi $>$ 1 = food secure ith household.

Fi $<$1 = food insecure ith household.

Individual farming household whose per capita monthly food expenditure falls above or is equal to two-third ($^2/_3$) of the mean per capita food expenditure were classified as being food secure while individual farming household whose per capita monthly food expenditure falls below two-third ($^2/_3$) of the mean monthly per capita food expenditure were classified as being food insecure.

3.7. Binary Logit Regression Model

A **binary logistic regression model** was employed to examine the influence of **socio-economic characteristics and cultural practices** on the food security status of farming households in the study area.

In the form of equation, the model is explained as:

$$Fi = b_0 + b_1 X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} \ldots\ldots\ldots b_{17}X_{17} \quad \text{(ii)}$$

Where:

Fi = Food security status
X_1 = Gender (Male or Female);
X_2 = Age (Years)
X_3 = Farm Size (Hectares);
X_4 = Farming Experience (Years)
X_5 = Household Size
X_6 = Access to Credit (= 1 if yes, 0 if no)
X_7= Level of Education
X_8 = Monthly Income
X_9 = Source of Lbour (Man-day)
X_{10} = Farm Output(Kg)
X_{11} = Shifting Cultivation
X_{12} = Bush Fallowing
X_{13} = Mixed Cropping
X_{14} = Mono Cropping
X_{15} = Crop Rotation
X_{16} = Traditional Irrigation Method
X_{17} = Most Important Crops in your Households

3.8. Likertscale Mean Rating

The **constraints influencing the attainment of food security** among farming households in the study area were evaluated using a **4-point Likert scale**, with response options: **Very Serious (VS), Serious (S), Mildly Serious (MS), and Not at All (NAA).** The **mean ratings** of respondents' responses were computed to quantify the severity of each constraint, allowing the identification of the most critical factors limiting household food security.

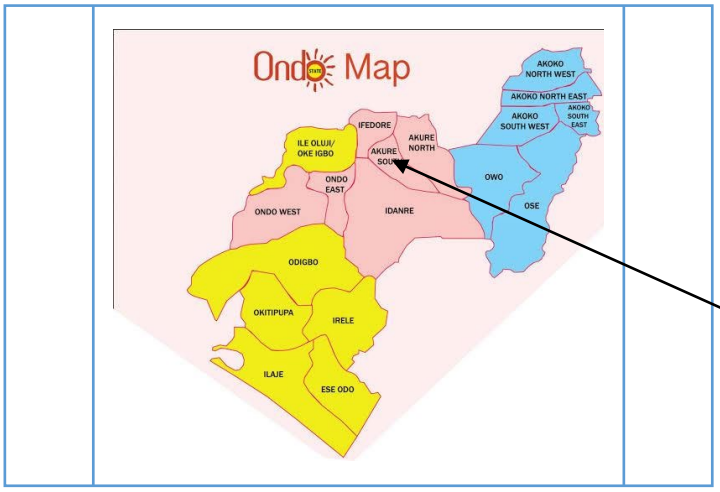

Figure 1. Map showing the location of Akure South Local Government Area within Ondo State

Source: (Ojo, et al., 2020)

4. Result and Discussion

4.1 Socio-economic characteristics

The socio-economic characteristics of the respondents considered in this study include gender, age, marital status, level of education, household size, farm size, years of experience, access to credit, sources of credit, other source of income, monthly income and traditional practices. The results indicated that **70% of the respondents were male**, while **30% were female**, suggesting that farming households in the study area are predominantly male-headed. This gender pattern may be attributed to the **labour-intensive nature of farming activities**, which often favours male participation. These findings are consistent with Abdulrazaq et al. (2022), who reported that while males constitute the majority of farmers, females also participate actively in agricultural activities, albeit in smaller proportions.

The results indicated that most **respondents (53.4%) were aged 31–40 years**, with an average age of approximately 41 years. Respondents aged 41–50 years and 51–60 years accounted for **28.3% and 18.3%,** respectively. The mean age of 41 years suggests that the respondents are within the **economically active population**, capable of engaging effectively in farming activities. Younger farmers are often more adaptable to new agricultural practices and innovations, which can enhance household food security. These findings are consistent with Ojo et al., (2026), who reported that most farmers were in their active productive years, enabling them to cultivate larger farms and participate in off-farm activities to increase household income.

The analysis of marital status revealed that **16.7% of respondents were single**, **80% were married, 0.8% were separated,** and **2.5% were widowed.** These findings indicate that the majority of farmers in the study area are married. This observation aligns with the results of Amao and Fasakin (2022), who reported that most farmers are family men or women engaged in farming as a primary occupation. Furthermore, Amao and Fasakin (2022) noted that marital responsibilities may increase the socio-economic obligations of household heads, potentially elevating household food expenditure and providing additional labor necessary for farming activities.

The results indicated that **8.3% of respondents had no formal education, 20% had primary education, 59.2% had secondary education**, and **12.5% had tertiary education**. This suggests that the majority of respondents are **relatively well-educated**, which is expected to positively influence household food security. These findings are consistent with (Abdulaleem & Ojo, 2025), who reported that higher educational attainment enables individuals to adopt modern agricultural technologies, improve farm productivity, and access better employment opportunities in the labor market

The result of household size revealed that **9.2% of respondents had a household size of 1–2 persons, 55.8% had 3–4 persons, 33.3% had 5–6 persons,** and **1.7% had 7 or more persons**. The **mean household size** was approximately **4 persons**, indicating an appreciable supply of household labor available for farm operations. These findings are consistent with Haddabi et al. (2019), who reported similar results in their study.

The results revealed that **22.5% of respondents had less than 10 years of farming experience, 47.5% had 11–20 years, 25% had 21–30 years,** and **5% had more than 30 years**. The **mean farming experience**

was approximately **17 years**, indicating that most respondents have extensive experience in agricultural activities. Farming experience is a key determinant of productivity, as longer experience often enhances farmers' efficiency and decision-making (Huang & Tian, 2019). These findings are consistent with Ayantoye (2022), who reported that farmers in their study area possessed substantial farming experience.

The results revealed that only **18.3% of respondents had access to credit**, while the majority (**81.7%)** did not. This limited access may be attributed to the infrequent provision of financial support by government institutions to smallholder farmers. Access to credit is essential for purchasing farm inputs, paying for labor, and acquiring food items, all of which can enhance household food security. These findings are consistent with Fasakin and Popoola (2019) and Mohammed (2016), who reported that rural households had limited or no access to credit.

The results indicated that 20.8% of respondents had a farm size of 1–2 acres, 30% had 3–4 acres, and 49.3% had 5–6 acres, with a mean farm size of approximately 4 acres. These findings suggest that farming households in the study area primarily engage in small-scale food production, which may reflect limited access to land. This observation aligns with Haddabi et al. (2019), who reported that most rural farmers operate on small-scale farms.

The results revealed that 83.3% of respondents engaged in additional income-generating activities, while 16.7% did not. Engagement in off-farm activities can influence household food security, either positively or negatively, depending on the level of income generated. Haddabi et al. (2019) reported that participation in such activities can increase household income, thereby enhancing food security. Conversely, Babatunde & Qaim (2010) noted that if farmers allocate excessive time to off-farm activities at the expense of farm work, particularly when the income earned does not compensate for the foregone farm production—their food security situation may deteriorate.

The results indicated that the **mean monthly income of respondents was ₦54,680.21**, suggesting that an average farming household earns approximately this amount per month. This income level is below the national minimum wage, indicating that respondents are primarily **smallholder farmers with limited financial resources**, which may increase their vulnerability to poverty. These findings are consistent with Kota et., al. (2023), who reported that household income positively influences food security, implying that households with higher earnings have a greater likelihood of being food secure.

The results indicated that most respondents engage in various **traditional agricultural practices. Mixed cropping** was the most commonly practiced, followed by **traditional irrigation, mono-cropping**, **crop rotation**, **shifting cultivation**, and **bush fallowing**, ranked first through sixth, respectively. These practices are often environmentally sustainable and cost-effective, which may explain their continued adoption among farming households in the study area. However, Agada and Igbokwe (2016) noted that while such practices have ecological benefits, they may constrain productivity if not complemented by **improved technologies and access to markets**.

Table 1. Socio-economic Characteristics of Respondents

Characteristics	Frequency	Percentage	Mean / Rank
Gender			
Male	84	70	
Female	36	30	
Age (Years)			
31–40	64	53.4	
41–50	32	28.3	
51–60	22	18.3	41
Marital Status			
Married	96	80	
Single	20	16.7	
Separated	1	0.8	
Widowed	3	2.5	
Household Size			
1–2 Persons	11	9.2	
3–4 Persons	67	55.8	4
5–6 Persons	40	33.3	
7 and above	2	1.7	
Education Status			
No Formal Education	10	8.3	
Primary	24	20	
Secondary	71	59.2	
Tertiary	15	12.5	
Farming Experience (Years)			
<10 Years	27	22.5	
11–20 Years	57	47.5	17
21–30 Years	30	25	
Above 30 Years	6	5	
Farm Size			
1–2 acres	25	20.8	
3–4 acres	36	30	
5–6 acres	59	49.2	
Access to Credit			
No	110	91.6	
Yes	10	8.4	
Other Source of Income			
Yes	100	83.3	
No	20	16.7	
Monthly Income (₦)			
Below ₦21,000	13	10.8	
₦21,000–₦40,000	35	29.2	
₦41,000–₦60,000	50	41.7	₦54,680.21
₦61,000–₦80,000	20	16.7	
₦80,000 and above	2	1.6	
Traditional Practices			

Characteristics	Frequency	Percentage	Mean / Rank
Mixed Cropping	100	83.3	Ranked 1st
Traditional Irrigation	93	77.5	Ranked 2nd
Mono-cropping	92	76.7	Ranked 3rd
Crop Rotation	90	75	Ranked 4th
Shifting Cultivation	81	67.5	Ranked 5th
Bush Fallowing	78	65	Ranked 6th

Source: Field survey (2026)

4.2. Household Food Security Status in the study area.

The results presented in Table 2 indicate the mean monthly expenditure of farming households in the study area. Households spent an average of ₦55,533.33 on food, ₦6,141.67 on house rent, ₦5,525.00 on children's school fees, ₦3,065.83 on health and footwear, ₦2,545.00 on firewood/kerosene/cooking gas, ₦1,919.17 on toiletries, ₦2,539.17 on cosmetics, ₦2,324.17 on laundry, ₦143.33 on disinfectants, ₦1,183.33 on petrol for generators, ₦616.67 on fueling vehicles/motorcycles, ₦2,462.50 on electricity, ₦2,429.17 on transportation, ₦258.33 on vehicle/motorcycle repairs, ₦2,563.33 on sugar/sweets, and ₦579.17 on spices. The total mean monthly household expenditure was estimated at ₦89,929.17. Using two-thirds of the mean per capita household expenditure as the criterion for food security, the threshold was estimated at ₦59,952.78.

Findings revealed that 79.2% of households were food secure, while 20.8% were food insecure, indicating that most farming households in the study area are food secure. This may be attributed to the fact that many households engage in additional income-generating activities, reducing their dependence solely on farming. These results are consistent with Haddabi et al. (2019) and Sambo et al. (2017), who reported a higher proportion of food-secure households compared to food-insecure households in their study areas. Conversely, these findings contrast with Olowogbayi et al. (2019), who observed widespread food insecurity among households, and with Adeyanju et al. (2023), who reported that despite producing food, many young farmers in Kenya, Nigeria, and Uganda remain food insecure. Similarly, Tambe et al. (2023) found that while rural farming households in South Africa were generally poor, only approximately one-third were food insecure.

Table 2. Household Food Security Status among Farming Households in the Study Area

Household Expenditure	Estimates (₦)	Percentage (%)
Food	55,533.33	61.8
House rent	6,141.67	6.8
School fee	5,525.00	6.0
Footwear	3,065.83	3.5
Firewood/Kerosene/Cooking gas	2,545.00	2.8
Toiletries	1,919.17	2.1
Cosmetics	2,539.17	2.8
Laundry	2,324.17	2.6
Disinfectant	143.33	0.2
Petrol for generator	1,183.33	1.3
Fueling car/motorcycle	616.67	0.7

Electricity	2,462.50	2.8
Transportation	2,429.17	2.7
Repair of vehicle/motorcycle	258.33	0.3
Sugar/sweet	2,563.33	2.9
Spices	579.17	0.6
Mean Per Capita Household Expenditure	89,929.17	100.0
2/3 Mean Per Capita Household Expenditure (Food Security Index)	59,952.78	
Food secure	95	79.2
Food insecure	25	20.8
Total	120	100.0

Source: Field Survey (2026)

4.3. Socio-Economic Characteristics and Tradtional Practices Affecting Food Security among Farming Households in the Study Area

Table 3 presents the results of the binary logit regression analysis examining the influence of socio-economic characteristics and cultural farming practices on food security among farming households in the study area. The results indicate that household size, years of farming experience, and shifting cultivation significantly influenced household food security ($p < 0.05$).

Household size exhibited a negative and statistically significant relationship with food security ($\beta = -1.675$, $p = 0.000$), implying that an increase in household size significantly reduces the likelihood of being food secure. Specifically, a unit increase in household size is associated with a 16.75% decrease in household food security. Although larger households are often assumed to benefit from increased family labor, this finding suggests that the pressure of meeting food needs for more household members may outweigh labor advantages, thereby increasing vulnerability to food insecurity, malnutrition, and poverty. This result is consistent with the findings of Irohibe and Agwu (2014), who also reported a negative effect of household size on food security.

However, it contrasts with the findings of Tambe et al. (2023) and Haddabi et al. (2019), who observed that larger households tended to be more food secure, possibly due to differences in socio-economic context and livelihood strategies.

Years of farming experience showed a positive and statistically significant relationship with food security ($\beta = 0.120$, $p = 0.082$), indicating that a 1% increase in years of farming experience increases the likelihood of household food security by approximately 12%. This suggests that farming households with longer experience are more likely to be food secure than those with fewer years of experience.

The positive influence of experience may be attributed to improved decision-making, better risk management, accumulated indigenous knowledge, and more efficient use of farm resources, all of which contribute to enhanced food availability and stability. This finding aligns with Olagunju and Adesanya (2019) and FAO (2013), who emphasized that farming experience enhances farmers' skills, adaptability, and capacity to maintain consistent household food supply.

Shifting cultivation was also found to have a negative and statistically significant effect on food security ($\beta = -1.050$, $p = 0.098$), suggesting that increased reliance on shifting cultivation reduces the likelihood of household food security. Although shifting cultivation is traditionally associated with soil fertility restoration and resilience in subsistence farming systems (World Bank, 2015), the negative relationship

observed in this study may be linked to shortened fallow periods, land pressure, and declining soil fertility over time.

This finding contradicts earlier studies, such as Oluwatayo and Ojo (2016), which reported that households practicing sustainable land management techniques like crop rotation were more likely to be food secure. The disparity may reflect changing land-use dynamics, population pressure, and reduced effectiveness of traditional practices under current socio-economic conditions.

Other variables—including sex, age, marital status, education level, access to extension services, access to credit, cooperative membership, farm size, market access, bush fallowing, mixed cropping, mono-cropping, and irrigation practices—were not statistically significant ($p > 0.05$).

This suggests that these factors do not independently determine household food security in the study area. The result underscores the complex and context-specific nature of food security, highlighting the role of structural constraints, institutional quality, and interaction effects rather than isolated demographic or agronomic characteristics.

Overall, the findings indicate that household size and years of farming experience are the key socio-economic determinants of food security, while shifting cultivation is the only cultural farming practice that significantly influences food security among farming households in the study area.

Table 3. Binary Logit Regression Results of Socio-Economic and Cultural Practices Affecting Food Security among Farming Households

Variable	Coefficient (β)	Standard Error	p-value	Significance
Family Size	-1.675	0	0	***
Years of Farming Experience	0.12	0.082	0.082	*
Shifting Cultivation	-1.05	0.098	0.098	*
Gender	0.21	0.176	0.23	NS
Age	0.015	0.012	0.21	NS
Marital Status	0.085	0.072	0.23	NS
Education Level	0.032	0.021	0.16	NS
Access to Extension Services	0.045	0.038	0.24	NS
Access to Credit	0.072	0.056	0.21	NS
Cooperative Membership	0.05	0.04	0.22	NS
Farm Size	0.065	0.054	0.2	NS
Market Access	0.037	0.029	0.21	NS
Bush Fallowing	0.012	0.011	0.28	NS
Mixed Cropping	0.021	0.018	0.27	NS
Mono-cropping	-0.015	0.013	0.3	NS
Irrigation Practices	0.028	0.024	0.25	NS

Source: Field survey (2026)

Notes: Significance codes: ***p < 0.01; **p < 0.05; *p < 0.10; NS = Not significant (p> 0.10).
•Dependent variable: Household Food Security (1 = Food Secure, 0 = Food Insecure).

4.4. Constraints Affecting the Achievement of Food Security among Farming Households in the Study Area

The results presented in Table 4 reveal several constraints limiting the achievement of food security among farming households in the study area. Among these, limited government support for agriculture ranked as the most severe constraint. This was followed by limited access to farm machinery and equipment, and the high cost of farm inputs such as fertilizers, improved seeds, pesticides, and herbicides, which ranked second and third, respectively. These findings underscore the critical role of institutional and input-related factors in shaping household food security outcomes.

Inadequate access to credit was ranked fourth, highlighting persistent financial constraints that restrict farmers' ability to invest in productivity-enhancing inputs and technologies. Limited access to land ranked fifth, reflecting land tenure and availability challenges that constrain farm expansion and intensification. Climate and environmental constraints, including erratic rainfall and extreme weather events, ranked sixth, emphasizing the growing vulnerability of smallholder agriculture to climate variability.

Other constraints identified include limited access to improved farming technologies (7th), unavailability of labor (8th), and limited storage facilities (9th). These factors further exacerbate post-harvest losses, labor bottlenecks, and low productivity. In contrast, limited knowledge of processing techniques ranked tenth, suggesting that post-harvest processing knowledge is perceived as a relatively minor challenge compared to production, institutional, and environmental constraints.

The findings are consistent with earlier studies. Haddabi et al. (2019) similarly identified poor access to credit, high input costs, inadequate storage facilities, and weak extension services as major impediments to food security among farming households. Likewise, Abdulrazaq et al. (2022) reported that inadequate farm inputs, climate shocks, pest and disease pressure, limited access to credit, poor market infrastructure, and farmer–pastoralist conflicts significantly constrained food security in rural farming communities. Overall, the results point to the need for integrated policy interventions that strengthen government support, improve access to affordable inputs and credit, enhance climate resilience, and expand access to appropriate agricultural technologies.

Table 4. Constraints Affecting the Achievement of Food Security among Farming Households in the Study Area

Constraint	Very Serious F (%)	Serious F (%)	Mild Serious F (%)	Not at All F (%)	Mean	Rank
Limited government support for agriculture	44(36.7)	46(38.3)	18(15.0)	12(10.0)	3.02	1st
Limited access to farm machinery/equipment	42(35.0)	42(35.0)	26(21.7)	10 (8.3)	2.97	2nd
High cost of farm inputs (fertilizers, improved seeds, pesticides/ herbicides)	42(35.0)	36(30.0)	34(28.3)	8 (6.7)	2.93	3rd
Inadequate access to credit	24(20.0)	66(55.0)	26(21.7)	4 (3.3)	2.92	4th
Limited access to land	40(33.4)	52(43.3)	4 (3.3)	24(20.0)	2.89	5th

Constraint	Very Serious F (%)	Serious F (%)	Mild Serious F (%)	Not at All F (%)	Mean	Rank
Climate and environmental constraints	24(20.0)	60(50.0)	34(28.3)	2 (1.7)	2.88	6th
Limited access to improved farming technologies	36(30.0)	48(40.0)	20(16.7)	16(13.3)	2.87	7th
Unavailability of labor	42(35.0)	36(30.0)	26(21.7)	16(13.3)	2.87	7th
Limited storage facilities	34(28.3)	40(33.3)	20(16.7)	26(21.7)	2.68	9th
Limited knowledge of processing techniques	4 (3.3)	20(16.7)	72(60.0)	24(20.0)	2.03	10th

Source: Field survey, 2026.

5. Conclusions and Recommendations

The study revealed that most farming households in Akure South Local Government Area are food secure and engage in a variety of Traditional farming practices, including mixed cropping, crop rotation, soil conservation techniques, and irrigation methods, to enhance household food security. Household size and years of farming experience were identified as the key socio-economic characteristics influencing food security, while shifting cultivation was the only cultural practice with a significant impact. Major constraints affecting food security included limited government support for agriculture, inadequate access to farm machinery and inputs, high cost of inputs, limited access to credit and land, climate and environmental challenges, labor shortages, and insufficient storage facilities.

Based on these findings, it is recommended that policymakers, agricultural stakeholders, and development agencies should:

1. Promote income diversification through rural enterprise support, vocational training, and access to off-farm employment to reduce dependency on subsistence farming and improve household food security.
2. Strengthen extension services and targeted training programs to equip farmers with knowledge on sustainable and culturally appropriate agricultural practices, and facilitate the adoption of improved technologies.
3. Integrate traditional farming practices, such as mixed cropping and crop rotation, with modern agricultural techniques to enhance productivity while maintaining soil fertility.
4. Improve access to affordable credit, subsidized inputs, and farm machinery to enable smallholder farmers to expand production and ensure consistent food supply.
5. Address structural and environmental constraints by implementing policies that improve land access, storage facilities, labor availability, and climate resilience strategies for farming households.

Collectively, these interventions would enhance the capacity of farming households to achieve sustained food security and support broader rural development objectives in the study area.

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