



## Food Insecurity and Coping Strategies among Rural Farming Households: An Analysis of Socioeconomic Determinants and Production Systems in Ikere, Ekiti State, Nigeria

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### Research Article

### ABSTRACT

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Despite owning only a small portion of the arable land, smallholder farmers—who constitute the majority of farming households—remain the backbone of the nation's food supply. This study investigated the food insecurity status and coping strategies adopted by rural farming households in Ikere, Ekiti State, Nigeria. Primary data were collected from 255 households using a structured questionnaire. The Household Food Insecurity Access Scale (HFIAS), Coping Strategies Index (CSI), and Ordered Logit Model (OLM) were employed to analyze the data. The findings revealed a mean age of 49.4 years and a male-dominated (76%) farming population with low formal education. The primary staple crops cultivated are maize (66.7%) and cassava (62.4%). The HFIAS categorized 72.2% of households as food-insecure, with 46.3% mildly food-insecure, 20.8% moderately food-insecure, and 5.1% severely food-insecure. The OLM identified five significant determinants of food insecurity status - sex (-0.478), education (-0.198), livestock rearing (-0.362), and access to agricultural information (-0.148), negatively associated with food insecurity, while land ownership (0.377) was positively associated with the likelihood of being more food insecure. Overall, the findings indicate that food insecurity remains a major challenge, necessitating policy interventions focused on human capital development and livelihood diversification to enhance household resilience.

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## INTRODUCTION

Food is a fundamental human right and a prerequisite for existence, serving as the primary vehicle for nutrition and energy (Aboaba et al., 2020; Adesiyani and Kehinde, 2024). Despite its necessity, millions suffer from chronic malnutrition, a condition largely driven by food insecurity—the inability to consistently obtain sufficient food for an active, healthy life (Atsede et al., 2025). Food insecurity remains a critical development challenge in many low- and middle-income countries, and its burden is particularly severe in sub-Saharan Africa where a significant proportion of the population depends on smallholder agriculture for livelihoods. In Nigeria, food insecurity persists despite the country's considerable agricultural potential, with rural farming households frequently experiencing inadequate access to sufficient, safe and nutritious food due to low incomes, production constraints and rising food prices (Otekunrin, et al., 2021). Conversely, food insecurity among farming households in Nigeria is a complicate issue driven by a range of socioeconomic factors, including low education, limited access to credit, small farm size, low farm and non-farm income, large household size, weak extension contact, and poor access to farm technologies (Babarinde, et al., 2024). Food insecurity represents a profound threat to national stability. (Maxwell et al., 2023). Despite Nigeria's endowment with a wealth of natural resources and human capital, Nigeria continues to face a continuous food crisis in output as well as quality (Kuku-Shittu et al., 2013). In Nigeria, food insecurity is still a major problem, especially in rural areas where smallholder farming households are essential to agricultural output (Adeolu and Ayodeji, 2025). With the growing demand for sustainable food systems to meet the local demand, particularly in regions struggling with hunger, inadequate food intake, and malnutrition, it has become imperative to recognize the rural farming household's contribution to the elimination of poverty and hunger through active participation in food production to address food insecurity (Chiaka et al., 2022).

The smallholder farmers who constitute the majority of the farming households are the backbone of the country's food production, producing nearly 90% of the country's food, despite owning only a small fraction of the arable land (Atsede et al., 2025). Nevertheless, these farmers face numerous obstacles that constrain their ability to enhance productivity and improve household food security, including limited access to land, loans and farm inputs, etc. According to Bahiru et al. (2018), food security is a state where all people have physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Food security is still a major concern worldwide, especially in developing countries like Nigeria, where a sizeable proportion of the population make their living from agriculture (Ajisafe et al., 2025). The nation's economic instability, marked by

volatile oil prices and currency fluctuations, exacerbates this challenge by diminishing citizens' purchasing power and ability to access sufficient food (Ekiti State Government, 2022). This vulnerability is disproportionately concentrated in rural sectors, where rural farming households, despite their central role in food production, are highly vulnerable to food insecurity due to low agricultural output, insufficient access to farm inputs, inadequate infrastructure, and climate variability (Chavula and Kayusi, 2025).

Empirical studies across Nigerian states consistently report high levels of food insecurity among smallholder farmers, often exceeding half of surveyed, with evidence from rural Oyo, Ondo, Ebonyi and the South-South zone highlighting the combined influence of socioeconomic and production-related factors on food security outcomes (Igene et al., 2025). Ekiti State demonstrates a clear agricultural paradox: notwithstanding its status as a major producer of staple crops, the state's full potential is constrained by the persistence of traditional agricultural practices (Dijkxhoorn et al., 2021). Eleven of the sixteen local government areas (LGAs) exhibit an escalating trend in food insecurity. The level of food insecurity varies significantly across the 16 local government areas, with Moba recording the highest level of food insecurity (66%), Ido Osi (64%), Ikere (45%) and Ado Ekiti recording the lowest level of food insecurity (26%) (Ekiti State Government, 2022). In Ikere, the reliance on subsistence farming poses specific challenges, as farming households primarily depend on their agricultural outputs for food, which makes them particularly vulnerable to fluctuations in crop yields due to weather changes, pests, and market prices, etc. According to a recent study by Ajao et al. (2023) in Ikere Local Government Area using the Household Food Insecurity Access Scale (HFIAS), the study reports that about 83.7% of farming households are food insecure at varying levels, and identifies household size, income, cooperative membership and access to extension services as key determinants of food security status. This vulnerability emphasizes the need for a comprehensive assessment of the food security status within these households in understanding the interplay between agricultural productivity, household income, nutrition, and access to resources, which will provide a clearer picture of the food security landscape (De-Cook et al., 2013). However, there is still limited empirical evidence that jointly examines food insecurity, household coping strategies and different agricultural production systems (such as arable, root and tuber, rice, or vegetable-based systems) within Ikere, and how these interact with households' socioeconomic characteristics.

This study, therefore, investigated the food insecurity prevalence in rural farming households in Ikere, and the coping strategies employed to mitigate the effects of food insecurity with specific emphasis on the socioeconomic determinants of food security and the role of different production systems. Specifically, the study described the socioeconomic characteristics of the smallholder farmers, predominant crops

cultivated, determined the dietary diversity status and its determinants, and evaluated the methods employed to cope with the effects of food shortage among the smallholder farmers in Ikere, Ekiti State.

## **MATERIALS and METHODS**

### **Ethical Approval**

This study was approved by the Federal Polytechnic Ado-Ekiti, School of Agriculture and Agricultural Technology Ethics Committee (FPA/SAAT EC, AP/REC/2024/0135).

### **Study Area**

The study was conducted in Ikere-Ekiti, Ekiti State, Nigeria. Ikere-Ekiti is selected due to its significant agrarian population and its varying levels of food insecurity, as highlighted in previous studies (Ekiti State Government, 2022). The town is located within Ekiti State in the South-West, Nigeria. It lies approximately on latitude 7° 30' North of the Equator and longitude 5° 14' East of the Greenwich Meridian. Ikere is bounded in the north by Ado-Ekiti, in the south by Akure North local government, and in the east and west by Ise/Orun and Ekiti South-West Local Governments, respectively (Ogundare, 2016). The estimated population of Ikere-Ekiti, as at 2020, with an annual growth rate of 2.5% is 222,400 (City Population, 2022). Ikere-Ekiti has distinct wet and dry seasons and a tropical climate. The rainy season spans from April – October, while the dry season is from November - March. Temperature is almost uniform throughout the year with very little deviation from an average of annual of 27° C (Talabi et al., 2023). According to Ogundare (2016), agriculture is the major economic pursuit of the people of Ikere, cultivating both food crops like yams, maize, cassava, cocoyam, rice, plantain, and cash crops like cocoa, kolanut, and oil palm, with an average annual total rainfall of 1,367 mm.

### **Sampling Procedure and Sample Size**

280 and smallholder farmers were chosen for the study using a two-stage sampling process. Seven (7) communities - Olukere, Edemo, Olotin, Odofin, Olumilua, Elekanran, and Abulefon were chosen for stage 1. In the second stage, 40 smallholder farmers were chosen randomly, resulting in a sample size of 280 households. However, only 255 responses were transmitted in real time. Primary data were gathered from heads of households in the selected communities within the study area, using a structured questionnaire. This questionnaire was developed and deployed digitally using Kobo Toolbox, a mobile data collection platform. Enumerators administered the questionnaire to the farmers face-to-face using the Kobo Collect app on Android devices. The digital approach facilitated the collection of data in real time

and ensured data accuracy through features such as skip logic and data validation (Kobo Toolbox, n.d.).

### **Analytical Techniques**

The dataset was summarized using descriptive statistics such as frequency, percentages, mean, and coefficient of variation. The level of food insecurity was evaluated using the Household Food Insecurity Access Scale (HFIAS), the determinants of food insecurity were assessed using the Ordered Logit Regression Model, and the coping strategies index was employed to examine the coping mechanisms used by smallholder farmers to mitigate against the impact of food insecurity in the study area.

### **Model Specification**

#### **Household Food Insecurity Access Scale (HFIAS)**

The Food and Nutrition Technical Assistance II project (FANTA) in collaboration with Tufts and Cornell Universities developed the Household Food Insecurity Access Scale (HFIAS) in 2006. It is a tool developed to assess household's food insecurity by evaluating behavioural and psychological responses of a household members to a lack of food over the previous 30 days using a two-part questionnaire (Appendix 1) (INDDEX Project 2018).

- i. Nine "occurrence" questions: First, a respondent is asked if they've ever experienced a specific condition (e.g., cutting back on the quality of food).
- ii. Nine "frequency-of-occurrence" questions: If the answer is yes, they are then asked how often (rarely, occasionally, or frequently).

The responses are used to create two types of indicators: a continuous score and a categorical status. The continuous score ranges from 0 to 27. Each of the nine frequency-of-occurrence questions is assigned a score from 0 to 3, where 0 means the condition didn't occur and 3 means it occurred frequently. These scores are then added together. A score of 0 means the household is food secure and answered "No" to all occurrence questions. A score of 27 means the household is severely food insecure and answered "Often" to all nine frequency-of-occurrence questions. A higher score indicates greater food insecurity. In addition to the continuous score, the HFIAS categorizes households into one of four levels of food insecurity based on their responses to specific questions (Jeffrey, 2023):

Table 1. Categorization of HFIAS food insecurity status

HFIAS status category	HFIAS score range	General description of household status
Food secure	0 – 1	The household rarely worried about food shortage (access), or did not encounter any of the situations.
Mildly food insecure	2 – 7	The household eats limited variety of foods, worried about not having enough food, or is unable to eat preferred foods items, but never reduces quantity.
Moderately food insecure	8 – 14	The household reduces the quantity of food (sometimes or often) but rarely experience the most severe conditions (running out of food, skipping meal for a whole).
Severely food insecure	15 – 27	The household experiences any of the severe conditions, such as going without food for an entire day or night, or going to bed hungry without food.

Source: INDDEx Project 2018

### Ordered Logit Model

The determinants of food insecurity ( $Y_i^*$ ), which is an ordinal variable with four alternative outcomes (food secure, mildly insecure, moderately insecure, severely insecure) were evaluated using an ordered logit model. The model makes the assumption that that  $Y_i^*$ , a continuous, unobserved latent variable, indicates the household's underlying tendency for food insecurity. The latent variable is linearly related to the set of independent variables ( $X_k$ ):

$$Y_i^* = \beta_0 + \sum_{k=1}^n \beta_k X_{ki} + \epsilon_i \quad (1)$$

Where:

$Y_i^*$  is the latent, unobserved food insecurity status for household  $i$ .

$X_{ki}$  represents the  $k$ -th socioeconomic determinant for household  $i$  (e.g., sex, education, land ownership).

$\beta_k$  is the vector of coefficients to be calculated, which shows how a change of one unit  $X_k$  affects the log-odds of falling into a higher category of food insecurity.

$\epsilon_i$  is the error term.

$$Y_i^* = \begin{cases} \text{Food Secure} & \text{if } Y_i^* \leq \mu_1 \\ \text{Mildly Insecure} & \text{if } \mu_1 < Y_i^* \leq \mu_2 \\ \text{Moderately Insecure} & \text{if } \mu_2 < Y_i^* \leq \mu_3 \\ \text{Severely Insecure} & \text{if } Y_i^* > \mu_3 \end{cases}$$

## Coping Strategy Index

This coping strategy index was calculated based on the frequency and severity of  $n$  locally-identified coping behaviours used by the household over the 30 days before the survey (FAO and OPM, 2018). Each reported strategy's frequency (e.g., '3-10 times') was multiplied by its locally assigned severity weight (ranging from 1 for less severe to 4 for highly severe strategies), and these products were summed to yield the final CSI score. Higher CSI scores indicated a greater reliance on severe or frequent coping mechanisms, reflecting increased vulnerability and current food insecurity (FAO and OPM, 2018).

For each coping strategy, the respondent (usually the person responsible for preparing food) is asked two things (Appendix II):

- i. Frequency: How often the strategy was used in the past 30 days (e.g., 1= Less than once in the past 30 days, 2 = 1 to 2 times, 3 = 3 to 10 times, 4 = More than 10 times).
- ii. Severity (Weight): The perceived severity (or magnitude of the impact) of the strategy, which is often pre-assigned and standardized based on local knowledge, reflecting the socio-economic cost of the strategy (e.g., 1= Low severity, 4 = High severity).

Each household's final CSI score is determined by adding the products of each coping strategy's frequency and the severity weight.

$$CSI = \sum_{i=1}^n (Frequency_i \times Weight_i)$$

Where  $i$  is a specific coping strategy and  $n$  is the total number of strategies listed.

## RESULTS and DISCUSSION

### Socio-Economic Characteristics of Rural Farming Households in Ikere

Table 2 shows the socio-economic characteristics of the rural farming households in Ikere. The result revealed that the mean age is 49.4 years. This indicates a largely middle-aged to ageing farming population. The relatively high mean age and the largest group being 45-54 years suggest a potential future challenge in terms of youth engagement in agriculture. Also, the majority (76%) of the farmers are male, with females constituting 24%, suggesting a male-dominated farming landscape. This is in line with Oluwatobi et al. (2024), who described an ageing demographic and gender imbalance among smallholder farmers. 77% are married, with considerable portion of household heads (38%) having primary education, followed by secondary (28%) and no formal education (21%). Only 13% have a tertiary education, suggesting a relatively low formal education level among the heads of rural farming households. This indicates that information dissemination strategies such as visual aids, practical

demonstrations, and dialect communication will be more effective than written materials in disseminating agricultural information. This aligned with Olatade et al. (2016), who observed low literacy levels to a greater extent influence reliance on informal information sources and the need for simplified, practical extension approaches. The mean household and farm size is 5 persons and 4 ha respectively, suggesting a medium household size, and a prevalence of small to medium-sized farms and the significance of inherited land are characteristic features of traditional agrarian systems in many parts of Nigeria as reported by Sanusi et al. (2022), who reported 94.56% inheritance as the highest mode of farmland acquisition in the Federal Capital Territory (FCT) Abuja. This indicates the dominance of customary land ownership and its implications for agricultural investment. The mean farming experience is 11 years, suggesting a generally experienced farming population with accumulated knowledge and skill. However, these farmers are without exposure to new technologies or practices due to a low level of education; this experience might be rooted in traditional, less productive methods, which may also be more resistant to change. 50% of land ownership is inherited/owned, suggesting a level of security in land tenure, which can incentivize long-term investments in the land. However, a minority (35%) of farmers are members of cooperative societies, while the majority (65%) are not. The low cooperative membership means that many farmers miss out on the advantages of collective action, such as financing availability, bulk purchasing of inputs, collective marketing, and shared knowledge. This contradicts the findings of Adegoke and Agbasi (2022). The low membership rates of the cooperative society could be caused by various factors, like lack of trust, poor management, or perceived irrelevance. Additionally, just 26% of them are able to access extension services, indicating a significant challenge for formal agricultural assistance on agricultural modernization, thereby making farmers to rely on informal sources or traditional knowledge, which may not be sufficient for improving productivity and adapting to changing agricultural landscapes.

Table 2. Socio-economic characteristics of the rural farming households in Ikere

Socioeconomic variables	Frequency (n=255)	Percentage	Mean
Age			49.4 years
25 – 34	13	5	
35 – 44	64	25	
45 – 54	101	40	
55 and above	77	30	
Sex			
Male	194	76	
Female	61	24	
Marital Status			
Single	12	5	
Married	196	77	
Widow/Widower	25	10	
Divorced/Separated	22	8	
Level of education			
No formal education	53	21	
Primary education	97	38	
Secondary education	71	28	
Tertiary education	34	13	
Household size			5 persons
1 – 4	92	36	
5 – 8	145	57	
9 – 12	18	7	
Farm Size			4 ha
< 1 ha	19	8	
1.00 – 2.99 ha	52	20	
3.00 – 4.99 ha	82	32	
≥ 5.00 ha	102	40	
Farming Experience			11 years
1 – 5	74	29	
6 – 10	80	31	
11 – 15	37	15	
16 – 20	27	10	
21 and above	37	15	
Land Ownership			
Inherited/Owned	128	50	
Rent/Leased	91	36	
Purchased	28	11	
Gift	8	3	
Cooperative membership			
No	165	65	
Yes	90	53	
Extension Services			
No	188	74	
Yes	67	26	

Source: Field Work, 2025

### Predominant Crops Cultivated Among Rural Farming Households in Ikere

Table 3 displays the distribution of crops predominantly cultivated among by smallholder farmers in Ikere. The result shows that maize (66.7%) and cassava (62.4%), ranked 1<sup>st</sup> and 2<sup>nd</sup> were the predominant crops and the most widely cultivated. This suggests their significance as a source of staple food income to households. The strong emphasis on maize and cassava points to these crops as foundational to the food security in Ikere. This highlights maize and cassava as major staple crops across sub-Saharan Africa, including Nigeria, due to their adaptability, high caloric yield, and role in household food security and income as opined by Apeh et al. (2023) and Wahab et al. (2022).

However, yam (49%), which are a significant but less cultivated tuber crop, is cultivated by almost half of the households and ranked 3<sup>rd</sup>. This suggests its importance, though slightly less extensive than maize and cassava. Minority crops such as cocoyam (11.0%) ranked 4<sup>th</sup>, plantain/banana (9.4%) ranked 5<sup>th</sup>, vegetables (7.5%) ranked 6<sup>th</sup>, and rice (3.1%), and cowpea (1.2%) which were ranked 7<sup>th</sup> and 8<sup>th</sup> respectively, are cultivated by a much smaller proportion of households, suggesting they are either niche crops, grown for specific household consumption, or face limitations for wider cultivation. The low cultivation rates of minority crops indicate a lack of significant crop diversification among rural farming households, which could imply over-reliance on a few crops, thereby leading to dietary deficiencies. The cropping pattern in Ikere reflects a strong reliance on maize and cassava, which are vital for household food security and likely a source of income. Nevertheless, the limited cultivation of other crops points to opportunities for promoting diversification to enhance food security, improve nutrition, and mitigate risks associated with over-reliance on a few commodities.

Table 3. Predominant crops cultivated among rural farming households in Ikere

Predominant crops cultivated in Ikere	Frequency (n=255)	Percentage	Ranking
Maize	169	66.7	1 <sup>st</sup>
Cassava	159	62.4	2 <sup>nd</sup>
Yam	125	49.0	3 <sup>rd</sup>
Cocoyam	28	11.0	4 <sup>th</sup>
Plantain and Banana	24	9.4	5 <sup>th</sup>
Vegetables	19	7.5	6 <sup>th</sup>
Rice	8	3.1	7 <sup>th</sup>
Cowpea	3	1.2	8 <sup>th</sup>

*Multiple responses allowed, Source: Field work, 2025*

## Food Insecurity Status And Its Determinants Among Rural Farming Households in Ikere

Table 4 presents the food insecurity status of rural farming households in Ikere, using the Household Food Insecurity Access Scale (HFIAS) (Appendix I), which categorized food security into four levels based on access to food. The result shows that 27.8% of the households are food secure with consistent access to adequate food in terms of quantity and quality. However, a majority (72.2%) of the households are food insecure, experiencing some form of food insecurity, with nearly half (46.3%) being mildly food insecure, suggesting that households under this category experience some level of concern about food access, often involving compromising the quality or variety of food consumed. 20.8% of the households are moderately food insecure, indicating that households under this category face more significant challenges, such as reducing the quantity of food consumed or skipping meals, while 5.1% of the households that fall in this category are severely food insecure, indicating severe limitations in food access among these households, who may go a day without food, or reducing quantity and quality to an extreme degree. This confirms the findings of Ajao et al. (2023), who found that in Ikere, only 16.3% of the farming households were food secure, and 83.6% were mildly, moderately and severely food insecure.

This high prevalence of food-insecure households (72.2%) indicates a significant challenge to the welfare of farming communities in Ikere. This suggests that the current level of food production, agricultural practices, economic opportunities, and social safety nets by the government may not be sufficient to ensure consistent food access for most rural farming families.

Table 4. Households' Food Insecurity Status of rural farming households in Ikere

Food Security Status	Frequency (n=255)	Percentage
Food Secure	71	27.8
Mildly Food Insecure	118	46.3
Moderately Food Insecure	53	20.8
Severely Food Insecure	13	5.1

Source: Researcher's computation

The Ordered Logit Regression model was employed to estimate the determinants of food insecurity among rural farming households in Ikere, Ekiti State as shown in Table 5. The overall model was statistically significant ( $\chi^2(10) = 57.60$ ; Prob < 0.0000), indicating that the included variables collectively and significantly influenced household food insecurity. The result identified five socioeconomic variables that significantly influence the household's food insecurity status. Sex (-0.478,  $P < 0.01$ ) was found to be negative and statistically significant, indicating that female-headed households are associated with higher food security and less likely to be in a more severe food insecurity category compared to their male counterparts. This may be due to women's attitude in spending income and allocating resources towards immediate

household needs, especially food quantity and quality for children and family members, rather than personal consumption or non-essential assets. Education (-0.198,  $P < 0.05$ ) was also negative and statistically significant, indicating that as the household head's education level increases, the household is less likely to fall into a more severe food insecurity status. This result corroborates the findings of Otekurin et al., (2021) who reported that formal education, among other factors, has a significant negative relationship with household food insecurity. This indicates that higher levels of education for the household head contribute to better food security status. Livestock rearing (-0.362,  $P < 0.10$ ) with a negative and statistically significant coefficient implies that households who engaged in livestock rearing are less likely to fall into deeper levels of food insecurity. This is often because livestock acts as "liquid assets" – households can sell animals for cash during lean seasons or consume animal products (milk, eggs, meat) to improve nutrition. Sources of Agricultural information (-0.148,  $P < 0.05$ ) has a negative and significant coefficient, indicating that as access to information (extension services, radio, or peer networks) increases, food insecurity decreases. This aligned with Moges et al. (2024), who observed that better information usually leads to improved farming techniques, better pest management, and smarter market timing. It also allows households to adopt improved farming techniques, which may lead to higher crop yields, thereby increasing households' food availability and income. However, land ownership (0.377,  $P < 0.001$ ) was found to be positive and associated with an increased likelihood of being in a more severe food insecurity category, indicating that land ownership, in isolation, does not guarantee food security among farming households in Ikere; rather, it is associated with a higher likelihood of being in a more severe food insecurity status. This may be attributed to the quality and utilization of the land, indicating that the owned land is either low-yielding, undercapitalized, or primarily dedicated to volatile cash crops, leaving households highly exposed when market prices fall or input costs rise. This emphasizes that productivity and resource access (e.g., capital, technology) are more critical determinants of food security than simple asset possession. The remaining socioeconomic variables - age, farm size, farming experience, and household size were found to be not statistically significant predictors of food insecurity status ( $p > 0.10$ ), suggesting that within the study area, these specific characteristics do not have a discernible influence on whether a household falls into a lower or higher food insecurity category.

Table 5. Determinants of Food Insecurity Status among rural farming households in Ikere

Socioeconomic variables	Coef.	Std. Err.	Z	P> z
Sex	-4782748	.1813536	2.64	0.008***
Age	.0070044	.0103463	0.68	0.498
Education	-.1980814	.0817886	-2.42	0.015***
Farm size	.0376223	.0387356	0.97	0.331
Farming experience	-.0151777	.0108433	-1.40	0.162
Household size	.0407763	.0411056	0.99	0.321
Land ownership	.3766819	.0982015	3.84	0.000***
Livestock rearing	-.361831	.1887013	-1.92	0.055*
Sources of agricultural information	-.1479626	.0669684	-2.21	0.027**
/cut1	-.1536354	.6303149		
/cut2	1.264385	.6345286		
/cut3	2.374875	.6471911		
Number of observations	255			
Log likelihood	-274.86			
LR chichi2(10)	57.60			
Prob > chi2	0.0000			
Pseudo R2	0.0948			

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

### Coping Strategies Employed Against Food Insecurity by Smallholder Farmers.

The distribution of the Coping Strategy Index (CSI) against food insecurity for Ikere's rural farming households is shown in Table 6. The majority of households (95.3%) fell into the "low" group of the coping techniques index, according to the table. This implies that in order to deal with household food shortages, these households mostly rely on less severe or reversible coping mechanisms like cutting back on portion sizes, eating less desired foods, or restricting the number of meals each day. The fact that only 4.7% of households fall into the "medium" category, however, suggests that these households are using more substantial coping mechanisms, such as using credit to purchase food, sending kids to eat somewhere else, selling small assets, or drastically cutting back on non-food expenses.. However, the presence of a small percentage of rural farming households using medium-severity strategies highlights the need for continued monitoring and targeted support to prevent further deterioration, especially in the face of the economic challenges facing the country at the moment. This supports the findings of Bn Mukhtar et al. (2018) who argue that a high concentration of "Low Coping" often indicates a population that is "food insecure but stable" and note that "Low" strategies are often reversible, whereas "Severe" strategies often lead to long-term poverty traps.

Table 6. Coping Strategies Index against food insecurity

Coping strategy	Frequency	Percentage
Low coping strategies (0 – 50)	243	95.3
Medium coping strategies (51 – 99)	12	4.7
Severe coping strategies (over 100)	0	0
<b>Total</b>	<b>255</b>	<b>100</b>

Source: Researcher's computation, 2025

## CONCLUSION

This study confirms that a substantial majority of rural farming households in Ikere LGA (72.2%) are food insecure, despite their critical role in agricultural production. The predominant cropping system relies heavily on maize and cassava, indicating low diversification which exposes households to greater risk. The Ordered Logit Model successfully identified the key drivers of food security status - Female headship, higher education, engagement in livestock rearing, and better access to agricultural information significantly decrease the likelihoods of a household facing severe food insecurity. These factors bolster household resilience by promoting better resource allocation, diversified income streams, and higher productivity. However, the positive association between land ownership and food insecurity highlights that the quality, utilization, and capitalization of agricultural land are more critical than the mere act of possession. Hence, vulnerability to food insecurity in Ikere is primarily driven by deficiencies in human capital and a lack of access to productive resources and support systems (like extension services and cooperative membership), rather than a lack of land itself. Addressing food insecurity requires integrated strategies that look beyond crop production to enhance overall livelihood resilience.

## RECOMMENDATIONS

The following suggestions are essential for policy action targeted at lowering food insecurity among rural farming households in the research area in light of the findings.

- i. The Ekiti State Agricultural Development Program (ADP) should expand its outreach by adopting inclusive communication strategies. Prioritizing simplified, practical extension modules, establishing local demonstration farms, and utilizing indigenous dialects and visual aids are essentials to circumvent barriers posed by low formal education
- ii. State and Local Government administrations should incentivize the utilization of diverse agricultural information sources, and provide targeted financial and technical support for small-scale livestock enterprises (e.g. small ruminants and poultry). This strategy will serve a dual purpose: enhancing household nutritional intake and establishing a 'liquid asset' buffer to improve resilience against exogenous economic shocks.

iii Interventions by government and development partners should prioritize enhancing land productivity over mere land ownership. This can be achieved through the provision of subsidized high-yield inputs and the deployment of small-scale irrigation technologies. Furthermore, promoting commercialization and value-addition for staple crops will facilitate higher returns on land use, thereby increasing household purchasing power for diversified food sources.

iv. Given the observed higher food security status among female-headed households, policy initiatives should leverage women's efficient resource management and expenditure patterns. Future programs should channel credit, technical training, and agricultural inputs through established women's cooperatives and affinity groups to maximize impact.

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## **Conflict of Interest**

The authors have declared that that there are no competing interests.

## **Author' contribution**

The study was conceptualized by Akoh JP, who was also responsible for the writing and data analysis. Both Akoh JP and Akinola MO contributed significantly to the project design. Akinola M.O. was additionally responsible for the critical review and editing of the final manuscript.

## **AI Disclosure Statement**

AI-assisted technology - Gemini and Grammarly were used. Gemini was used for clarity and conciseness, while Grammarly was used to improve spelling and grammar. However, the authors have thoroughly reviewed the content and retain full responsibility for it.

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