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Determinants of food security among poultry egg farmers in Ogun state, Nigeria

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Abstract: Food security is a critical issue for households across Nigeria, particularly for poultry egg farmers in Ogun State. This study assessed their food security status, selecting 90 farmers through multi-stage random sampling. Using USDA methodology, it was found that 83.3% of the farmers were food insecure, with only 16.7% being food secure. Ordered probit regression analysis indicated that credit amount received at $P<0.01$, marital status and farming experience at $P<0.05$ significantly affect food security at the 5% level. Poultry farmers face numerous challenges that hinder productivity and profitability, including limited access to agricultural credit (78.9%), labour shortages (51.11%), and market price fluctuations (81.11%). Other issues include high input costs, input shortages, and insufficient veterinary services. To address these challenges, the study recommends targeted interventions by policymakers, such as improving access to credit, stabilizing input prices, enhancing extension services, and investing in infrastructure to ease transportation barriers. Collaborative efforts and knowledge-sharing among farmers are also crucial for building resilience against food insecurity.
Keywords: Food security, USDA, Poultry farmers, Ordered probit, PANOG

INTRODUCTION

Human progress and well-being depend on food security, a major problem in many emerging nations. Over 800 million people globally, and especially in developing nations, lack access to adequate food to meet their basic nutritional needs (Omotesho et al., 2006). Food insecurity is a complex issue that arises from a combination of factors, including poverty, inadequate access to nutritious food, limited agricultural productivity, and various socio-economic challenges, Food insecurity remains a critical challenge affecting many developing countries, with Nigeria being no exception. As Africa's most populous nation, Nigeria experiences high levels of food insecurity, impacting the well-being and livelihoods of millions of individuals and households. In rural areas, households are often most vulnerable to food insecurity due to limited access to resources, poor infrastructure, and low levels of income.

Food security is a condition in which all people constantly have physical and financial access to enough safe and nutritious food to satisfy their dietary needs and food preferences for a healthy and active life (FAO 1996 and Nandula et al. 2019). According to Mango et al. (2014), households are considered food insecure if they have inconsistent or limited access to food through socially acceptable routes. This issue affects many households globally, including those in Nigeria.

A significant portion of the average Nigerian household budget is allocated to food. Different types of food play a crucial role in delivering essential nutrients to the body, contributing to overall health. Therefore, it is essential to consume food in the appropriate quality and quantity (Omonona & Agoi, 2007). Observing the food security status of a specific population can aid in juxtaposing the local food security conditions with state and national trends. It allows for the evaluation of local requirements for food assistance, as well as the tracking of the impact of evolving policies or economic conditions (Omotesho et al., 2006).

Considering the significance of agriculture in the Nigerian economy, the poor performance of the agricultural sector could be linked to food insecurity and poverty. This, in turn, leads to challenges in both the availability and accessibility of food at both household and national levels (Bickel et al., 2015). Poultry production has a significant contribution to human food security and nutrition, protein, essential micro-nutrients, and the provision of energy through the ability to convert a wide variety of agri-food wastes and byproducts into edible meat and eggs (Onyeaka *et al.,* 2021*)*, (Daghir *et al.*, 2021). It is one of the most dominant meat and food industries in the world with about 23 billion birds worldwide in 2016, i.e., approximately 3 birds per person in the universe. Poultry production is important in the West African Economy, contributing about 30-50% of the GDP (Choi *et al.*, 2020). A significant area of the agricultural sector in Nigeria with enormous social and economic potential is the livestock sector.

The livestock sector particularly the poultry industry in Ogun State stands out for its small- to large-scale operations, intensive and semi-intensive rearing, improved domestic bird breeds, labor- and capital-intensive operations with high input and output rates, and intensive and semi-intensive rearing practices (Omodele and Okere 2014), (Akerele and Aderinto 2019). Ogun State has the highest poultry production rate in Nigeria's southwest geo-political zone. This largest poultry output is related not just to population, but also to market availability in neighboring States and other zones. However, the grains and other components utilized in the manufacturing of poultry feeds are also consumed by humans, thereby amplifying the demand for these

resources (John et al., 2022) . A fluctuation in the production output of maize and soybean meal, which are the primary inputs in poultry feed production, along with their prices, results in an immediate impact on the pricing of poultry feed. This, in turn, influences the prices of poultry products and subsequently affects overall profitability. Poultry production faces various challenges and limitations, leading to significant losses. Numerous factors contribute to this situation, including diseases, the scarcity, and the expensive nature of high-quality feed, which have forced many poultry operators out of business. Additionally, farmers' attributes, inadequate management practices, and reliance on traditional methods further contribute to the low productivity observed in Nigeria's poultry industry(Adewumi et.al ., 2022).

Based on Heinke's research in 2015, the poultry industry in Nigeria has the capability to fulfill the anticipated surge in demand for poultry product, thereby lowering poverty rates and enhancing food security among farmers. (Afodu et al., 2022). Given this context, this study aims to identify the challenges of poultry farmers' and the resulting impact on their food security status. The specific objectives of this study are to:

1. identify the challenges of poultry egg farmers in the study area
2. determine the food security status of the respondents.
3. Examine the determinants of food security in the study area

This study was conducted in the Remo zone of Poultry Association of Nigeria Ogun State (PANOG) zonal distribution, comprising Remo North, Ikenna, and Shagamu local government areas of Ogun State. On February 3rd, 1976, Ogun State was carved out of the previous Western State of Nigeria, and Abeokuta serves as the State capital. Due to its advantageous location in relation to the rest of the nation, it is frequently referred to as the "Gateway State." Ogun State is located between the longitudes of 2º38'57.1" and 4º36'22.9"E and the latitudes of 6 º17'57.9" and 7º58'39.8"N. The Egbas, Aworis, Ijebus, and the Remos are four different varieties of the Yoruba language spoken in the state of Ogun. Ogun specializes on traditional handicrafts like carving, sculpture, smithery, and poultry farming.

The State has a total population of 3,751,140 and a landmass of 16,981 sq km, or roughly 1.9% of the area of Nigeria. There are twenty (20) local governments area, according to (Omodele; and Okere, 2014). Small- to large-scale production, extensive or semi-intensive, and occasionally free-range rearing of improved domestic chicken breeds (in cages or on deep litter) are the main characteristics of the Ogun State poultry system. With a high input and high output, it is both labor- and capital-intensive. According to (Omodele; and Okere, 2014), Ogun State in the South-West geopolitical zone produces the most poultry in Nigeria. This largest poultry output is a result of both the high population and the market opportunities in the neighboring States and other regions.

METHODOLOGY

Primary data gotten from poultry egg farmers in the study area using the open-source Android app kobo collect was used for this investigation. Multi-stage sampling method was used, a zone was purposively chosen from the Poultry Association of Nigeria's Zonal distribution for the first stage (Remo Zone), this is because according to PANOG data, Remo zone had the highest number of farms registered with PANOG. The next stage involved the choice of three Local Government areas in the zone, the last step in the sampling process comprised selecting at random 30 poultry egg farmers from each Local Government Areas (LGA) that had been chosen, for a total of 90 poultry farmers.

Analytical tools that were used in the study are:

i. Descriptive statistics: including mean, percentage and frequency. The descriptive statistics were used to identify the farmer's challenges in the study area, and to describe respondents' socioeconomic characteristics which involved the use of frequency table, percentages and mean.
ii. the United States department of agriculture (USDA) food security approach

To accomplish study aim (iii), the USDA's food security strategy, which was adapted from Mustapha *et al.*, (2016), was implemented. the USDA system classifies household using a created scale for measuring food security, (Bickel et al., 2000). The scale is a linear number continuum with a range between 0 and 18. The scale assigns a single numerical value to each household's level of hunger and food insecurity. In essence, how a household rates on the scale is determined by how it responds to questions in a structured survey. The food security scale is first condensed into a smaller form in order to determine the level of food security for each household. which include:

i. food secure households: The food insecurity evidence in these household is either non-existent or very slight. The food security scale assigns them a number between 0 and 2
ii. food insecure without hunger households: Concerns exist regarding the sufficiency of the food supply for this set of households. They alter how they regulate their daily food intake. Their food security score ranges from 3 to 7.

iii. food insecure with hunger (moderate) households: The household have cut back on their food consumption to the point where the adults have felt physical pangs of hunger. The value of the group ranges from 8 to 12 on the scale.

iv. food insecure with hunger (severe) household: This household have reduced their children food intake to the point where the children have felt hungry. The group scores between 13 and 18 on the food security scale.

I. Using an ordered probit model, the determinants of food security status of the poultry egg farmers were investigated. Ordered probit is a generalization of the probit analysis used when an ordinal dependent variable has outcomes in more than two categories. From the following list, the dependent variable, "Food security," was ranked: "Food Secure," "Food Insecure Without Hunger," "Food Insecure with Hunger (Moderate")," and "Food Insecure with Hunger" (severe). The ordered probit model describing the link between the farmer's socio-economic characteristics and levels of food security has the highest likelihood since using Ordinary Least Squares (OLS) to estimate the model will produce biased and inconsistent findings. Let's say that the fundamental relationship to be described is,

$y_i = X_I\beta + \varepsilon_i$ ..... (1)

Where y_i is the precise but unobserved dependent variable; Xi is the group of unrelated variables., where β , is the vector of regression coefficients that we want to estimate. and ε_i is the error term such that ε_i is identically and independently distributed as N(0; 1). Further suppose that while we cannot observe y^*, we instead can only observe the categories of response:

$$y = \begin{cases} 0, \ if\ y* \leq 0, \\ 1, if\ 0 < y* \leq \mu_1 \\ 2, if\ \mu_1 < y* \leq \mu_2 \\ 3, if\ \mu_2 < y* \leq \mu_3 \end{cases} \quad \text{..... (2)}$$

The observations on y, which are a type of censored data on y^*, will then be used in the ordered probit approach to fit the parameter vector β.

$$Y = \beta_0 + \beta_1 Edu + \beta_2 Sex + \beta_3 Age + \beta_4 Marrital\ stat + \beta_5 HHSize + \beta_6 Mem\ assoc + \beta_7 Exten\ visit + \beta_8 Farm\ experience + \beta_9 Poutry\ income + \beta_{10} Nonfarm\ income + \beta_{11} Credit\ amount. \quad (3)$$

RESULTS AND DISCUSSION

Socioeconomic Characteristics

The socio-economic characteristics of poultry egg farmers in Ogun State Nigeria are of immense significance in the agricultural sector of the country. With Nigeria being one of the largest egg producers in Africa, these characteristics provide essential insights into the dynamics of this vital industry. Understanding the socio-economic factors of the poultry farmers such as Age, Gender, educational status and household size which may have influence on the operations is very important.

A summary of the socio- economic data is presented in Tables 1, The amount of food that households demand, which determines their level of food security, may or may not be influenced by these household characteristics (Omonona et.al.., 2007).

Table 1: Socioeconomic characteristics of poultry egg farmers

Characteristic	Frequency	Percentage
Age(years)		
20-30	4	4.4
31-40	25	27.8
41-50	32	35.6
50-60	20	22.2
61-70	7	7.8
≥ 70	2	2.2
Household Size		
1-3	13	14.4
4-6	71	78.9
≥7	6	6.7
Farming Experience(years)		
1-5	14	15.6
6-10	31	34.4
11-15	24	26.7
16-20	8	8.9
21-25	9	10.0
26-30	3	3.3
≥31	1	1.1

Characteristic	Frequency	Percentage
Flock Size		
≤ 1000 (Small)	16	17.8
1001-5000 (medium)	56	62.2
5001-10000 (controlled large)	18	20.0
Gender of Poultry Farmer		
Male	56	37.8
Female	34	62.2
Educational status		
Primary education	6	6.7
Secondary education	18	20.0
Tertiary education	66	73.3
Marital Status		
Married	78	86.7
Separated	2	2.2
Single	5	5.6
Widow/widower	5	5.6
Membership of Association		
Yes	72	80.0
No	18	20.0
Membership of Cooperative		
Yes	43	47.8
No	47	52.2
Visits by Extension Agents		
Yes	21	23.3
No	69	76.7

Source: Field Survey, 2023

Challenges of poultry egg farmers in the study area

Poultry egg farming plays a vital role in lowering poverty rates and enhancing food security among farmers. (Afodu et al., 2022).. However, egg farmers encounter various challenges that hinder their productivity and profitability. Table 2 shows a comprehensively analysed report of challenges faced by poultry egg farmers based on survey data, highlighting the percentages and frequencies of each challenge.

1. **Inadequate access to agricultural credit:** According to the survey results, a significant majority of poultry egg farmers (78.89%) reported experiencing inadequate access to agricultural credit. This challenge can hinder farmers' ability to invest in their operations, purchase equipment, and expand their businesses. Aromolaran et al.;(2013) and Rekwot et al., (2018) also listed credit issues as major challenges faced by poultry farmers.
2. **Inadequate hired/contract labour:** Approximately 51.11% of respondents indicated facing challenges related to inadequate hired or contract labor. This shortage of labor can impact various aspects of farm management, including feeding, cleaning, and maintenance tasks.
3. **Inadequate quality poultry feed:** About 35.56% of poultry egg farmers reported experiencing difficulties in accessing an adequate supply of poultry feed. Feed shortages or quality issues can negatively affect the health and productivity of laying hens, ultimately impacting egg production.
4. **Inadequate quality drugs:** 24.44% of respondents highlighted challenges related to the availability and quality of veterinary drugs. Access to high-quality medication is essential for preventing and treating diseases that can affect poultry health and egg production.
5. **Unavailability of extension services:** Over half of the farmers surveyed (53.33%) noted the unavailability of extension services as a challenge. Extension services provide valuable information and support on various aspects of poultry farming, including best practices, disease management, and market trends. Adeyemo, A. A., & Onikoyi, (2012) also reported that inadequate extension services are major challenges in the poultry industry.
6. **Reduction in output prices during egg glut:** A significant majority (81.11%) of respondents reported experiencing reductions in egg prices during periods of oversupply (egg glut). Fluctuations in market prices can significantly impact farmers' revenue and profitability.
7. **Increased/high cost of input prices:** Most respondents (86.67%) identified the high cost of inputs as a significant challenge.

Rising input prices, including feed, medication, and equipment, can squeeze profit margins for poultry egg farmers. Yenibehit et al., (2019) reported that high cost of input prices in poultry production was a major challenge for the industry.

8. **Shortage in input supply:** More than half of the farmers surveyed (54.44%) reported experiencing shortages in input supply. Delays or shortages in obtaining essential inputs can disrupt farm operations and impact productivity.
9. **Loss in farm revenue:** Nearly 70% of respondents (68.89%) reported experiencing losses in farm revenue. These losses can result from various factors, including market fluctuations, input costs, and disease outbreaks.
10. **Lack of output buyers (insufficient customers):** Over half of the surveyed farmers (53.33%) identified a lack of output buyers as a challenge. Limited market access or competition can make it difficult for farmers to sell their eggs at profitable prices.
11. **Reduced access/inability to access input market:** Approximately a quarter of respondents (24.44%) reported challenges in accessing input markets. Limited access to inputs can hinder farmers' ability to procure essential supplies for their operations.
12. **Disruption of day-to-day farm activity:** A significant minority (25.56%) of respondents noted experiencing disruptions in day-to-day farm activities. These disruptions can arise from various factors, including weather events, equipment breakdowns, or labor shortages.
13. **Unavailability of veterinary services:** A small percentage (13.33%) of respondents reported challenges in accessing veterinary services. Timely veterinary care is crucial for maintaining poultry health and preventing disease outbreaks. In similar research carried out by Adeyemo et al., 2012; and Rekwot et al., 2018, inadequate access to veterinary services were mentioned as challenges of the poultry farmers.
14. **Unavailability of public transportation to farm location:** Approximately 21.11% of respondents highlighted challenges related to the unavailability of public transportation to their farm locations. Limited transportation options can pose logistical challenges for farmers, especially in rural areas.

Table 2: Challenges of poultry egg farmers in the study area

Challenges of poultry egg farmers in the study area	Percentages	Frequencies
Experience inadequate access to agricultural credit	78.89	71
Experience inadequate hired/contract labour	51.11	46
Experience inadequate quality poultry feed	35.56	32
Experience inadequate quality drugs	24.44	22
Unavailability of extension services	53.33	48
Experience reduction in output prices during egg glut	81.11	73
Experience increased/high cost of input prices	86.67	78
Experience shortage in input supply	54.44	49
Experience loss in farm revenue	68.89	62
Experience lack of output buyers (insufficient customers)	53.33	48
Experience reduced access/inability to access input market	24.44	22
Disruption of day-to-day farm activity	25.56	23
Unavailability of veterinary services	13.33	12
Experience unavailability of public transportation to farm location	21.11	19

Source: Field Survey, 2023

Food security status of poultry egg farmers in Ogun state Nigeria

Based on the food security analysis results provided in Table 3, a small proportion of households (16.7%) can be classified as (food-secure), indicating their ability to meet their food requirement needs without requiring significant adjustments.

About 14.4% of the surveyed respondents fall into the category of food insecurity scale (without hunger), suggesting that these households need to make substantial changes to fulfil their food requirements.

Approximately 31.1% of the respondents are experiencing (moderate) food insecurity with hunger, which implies that this group has had to reduce their food intake to the extent that adult members of the household have repeatedly felt hunger.

Furthermore, the data shows that 37.8% of the respondents are experiencing (severe) food insecurity with hunger, meaning that these households have had to cut back on their children's

food intake to the point where the children have gone hungry.

These findings are consistent with the research conducted by Fakayode et al., (2009), which reported that only 12.2% of the country's households were food-secure, while 87.8% of Nigerian households experienced various levels of food insecurity. They also align with the findings of Oyakhilomen et al., (2015), who documented that only 10% of poultry egg farmers in Kaduna state were food-secure, with the remaining 90% on different levels of food insecurity.

The food security analysis indicated that only a small proportion (16.7%) of households were food-secure, with the majority (83.3%) experiencing varying levels of food insecurity. This underscores the severity of the situation and highlights the need for targeted interventions to address these challenges and improve food security among poultry egg farmers in Ogun State.

Table 3: Food Security Report for Poultry egg farmers in Ogun State.

Food security status	Frequency	Percentage
Food Secure (FS)	15	16.7
Food Insecure without Hunger (FIWOH)	13	14.4
Food Insecure with Moderate Hunger (FIWMH)	28	31.1
Food Insecure with Severe Hunger (FIWSH)	34	37.8
Total	**90**	**100**

Source: Field Survey 2023

Determinant of food security of poultry egg farmers in Ogun state Nigeria

Tables 4 and 5 report the factors influencing the food security status of poultry egg farmers in Ogun State, Nigeria. The study employs an ordered probit model to analyse the determinants of the respondent's food security status. The likelihood ratio chi-square (41.71) with a p-value (0.0002) revealed that all variables included in the model jointly and significantly influence the poultry farmers food insecurity status.

The estimated cut-off points (μ) adhere to the conditions whereby $\mu 1 < \mu 2 < \mu 3$, indicating that these categories are logically ordered and ranked as specified by Aboaba et al. (2020).

The estimated coefficients of independent variables indicate the likelihood of the dependent variable (household food security) falling into a particular category in response to a change in each independent variable. Consequently, the marginal effects of each independent variable were estimated to account for the actual magnitude of a change in the independent variables (Table 5).

The results of the ordered probit analysis indicate that poultry income, non-farm income and access to credit, along with other sociodemographic factors such as marital status, membership in poultry association and farming experience, play a significant role in determining the food security status of poultry egg farmers in the study area. In particular, Table 4 shows that farmers with low poultry farm income, non-farm income, and no credit or reduced credit access are likely to be in the food insecurity category; while not being married and being a member of the poultry association is associated with being food secure. However, the table also shows that increased years of farming experience may lead to food insecurity.

There is a significant ($P<0.001$) negative correlation between food insecurity and credit availability, meaning that having access to credit facilities lowers the risk of food insecurity for poultry egg farmers. Farm households may make a substantial contribution to purchasing high-quality, productivity-enhancing inputs that boost farm income and ensure food security by having access to credit facilities. The outcome supports the findings of Kehinde & Kehinde (2020), who found that having access to credit improves rural households' food security in southwest Nigeria.

Marital status had a significant ($p<0.05$) positive effect that affected the level of food security in households. This means that compared to their single counterparts, married households are less likely to have a secure food supply. The findings of this study contradict previous assumptions and the argument made by Ibrahim et al., (2022), which argues that married couples are more likely to pool their resources and may more easily allocate a decent percentage of their income to household consumption.

Membership in farmer associations has a significantly negative ($p<0.10$) influence on the household food insecurity status. This suggests that membership in farmer groups improves household food security in southwest Nigeria. Expectedly, a member of the farmer association should have a better chance of accessing useful information that can improve farm productivity and increase household income, which can then translate to better food security status.

Consistently, poultry farming and non-farm income have a significant negative ($P<0.1$) relation with food insecurity; this implies that an increase in household income for the farmers raises the probability of the farmers being food secure.

Table 4: Ordered probit estimates of the determinant of food security status of poultry egg farmers

HHFSSC	Coef.	Std. Err.	z	P>z
Years of schooling	-1.33E-01	8.56E-02	-1.55	0.121
Sex	1.11E-01	4.93E-01	0.23	0.821
Age	-3.47E-02	2.89E-02	-1.2	0.23
Marital status	1.51E+00**	7.09E-01	2.13	0.033
Household size	6.85E-02	1.79E-01	0.38	0.702
Memb Association	-1.14E+00*	6.59E-01	-1.73	0.084
extension visit	-1.53E-01	2.14E-01	-0.71	0.475
Farming experience	7.56E-02**	3.31E-02	2.28	0.022
Poultry income	-1.25E-06*	7.73E-07	-1.62	0.100
non-farm income	-1.23E-06*	7.42E-07	-1.65	0.099
credit amount	-6.38E-07***	1.91E-07	-3.35	0.001
/cut1	-5.23E+00	1.75E+00		
/cut2	-4.04E+00	1.72E+00		
/cut3	-2.37E+00	1.68E+00		

Source: field survey 2023, ***Significant at 1%, **Significant at 5%, *Significant at 10%

Table5: Marginal Effect of the Ordered Logistics Estimates of the Determinant of Food Security Status of Poultry Egg Farmers

	FOOD SECURE		FIWH		FIWMH		FIWSH	
variable	dy/dx	P>z	dy/dx	P>z	dy/dx	P>z	dy/dx	P>z
yearso~g	2.24E-02	0.177	1.07E-02	0.283	-1.41E-02	0.288	-1.90E-02	0.171
Sexofr~t*	-1.90E-02	0.822	-8.82E-03	0.822	1.20E-02	0.824	1.58E-02	0.821
Ageiny~s	5.86E-03	0.27	2.79E-03	0.351	-3.67E-03	0.347	-4.98E-03	0.272
Marit~s*	-3.20E-01*	0.064	-2.50E-02	0.81	1.95E-01**	0.046	1.51E-01*	0.073
Househ~s	-1.16E-02	0.708	-5.50E-03	0.705	7.25E-03	0.717	9.82E-03	0.701
Member~n*	1.57E-01*	0.102	1.08E-01	0.145	-6.48E-02	0.497	-2.00E-01	0.166
extens~t	2.59E-02	0.5	1.23E-02	0.501	-1.62E-02	0.532	-2.20E-02	0.478
farmin~s	-1.28E-02*	0.101	-6.07E-03	0.179	8.00E-03	0.237	1.08E-02*	0.056
Poultryi~e	2.12E-07	0.286	1.01E-07**	0.015	-1.33E-07	0.413	-1.80E-07***	0.001
nonfar~e	2.07E-07*	0.103	9.85E-08	0.327	-1.30E-07	0.206	-1.76E-07	0.204
credit~t	1.08E-07**	0.016	5.13E-08	0.208	-6.75E-08	0.141	-9.15E-08*	0.053

Source: field survey 2023, ***Significant at 1%, **Significant at 5%, *Significant at 10%

The socio-economic characteristics of poultry egg farmers in Ogun State, Nigeria, reveal a diverse demographic profile, including age distribution, household size, farming experience, flock size, gender, educational status, marital status, and association/cooperative membership. These characteristics provide insights into the composition and dynamics of the poultry farming sector in the region.

Poultry egg farmers face numerous challenges that hinder their productivity and profitability, affecting their food security status. These challenges underscore the complexity and multifaceted nature of the obstacles faced by poultry farmers in Ogun State.

The food security status report of poultry egg farmers reveals significant levels of food insecurity within the community. While a small proportion of households are food-secure (16.7%), a substantial portion (83.3%) experience varying degrees of food insecurity, ranging from moderate to severe hunger, while an assessment of the determinants of food security among the farmers shows that, credit amount received, income from poultry farming, and non-farm income, have a substantial impact on the household's food security status. These findings highlight the pressing need to address food security issues among poultry egg farmers and improve their access to nutritious food.

CONCLUSION AND RECOMMENDATION

The findings of this research underscore the critical importance of addressing the challenges faced by poultry egg farmers in Ogun State, Nigeria, to improve food security and livelihoods in the region. By implementing targeted interventions to enhance access to credit, labour, inputs, markets, and support services, policymakers, stakeholders, and development partners can promote the resilience and sustainability of the poultry farming sector while ensuring the well-being of farmers and their communities. Collaboration across government agencies, financial institutions, agricultural organizations, and local communities is essential to effectively address the multifaceted nature of the challenges and achieve a meaningful impact in improving food security among poultry egg farmers.

In addressing the identified challenges and improving food security among poultry egg farmers in Ogun State, the following recommendations are proposed:

1. **Enhanced Access to Agricultural Credit:** Government and financial institutions should collaborate to provide poultry farmers with easier access to affordable credit facilities, enabling them to invest in their operations and overcome financial constraints.
2. **Labour Support Programs:** Initiatives to address labour shortages through training programs, incentives for skilled labour, and partnerships with educational institutions can help alleviate staffing challenges on poultry farms.
3. Food Security Interventions: Programs to improve food security should target households with limited credit access and lower farming experience. The programs should also include support for increasing credit access and overall income generation in poultry egg farming.

REFERENCES

Aboaba, K. O., Akamo, A. A., Fadiji, D. M., & Obalola, T. O. (2020). Food Security and Income Diversification Nexus: Usda Approach. *Scientific Papers-Series Management Economic Engineering in Agriculture and Rural Development*, *20*(3), 13–23.

Adewumi, A., Agidigbo, K. O. and Arowolo, K. O. (2022). *Profit efficiency of poultry farmers in irepodun local government area of kwara state, nigeria*. *5*(2), 45–53.

Adeyemo, A. A., & Onikoyi, M. P. (2012). Prospects and challenges of large scale commercial poultry production in Nigeria. *Agricultural Journal*, *7*(6), 388–393.

Afodu, O., Balogun, O., Afolami, C., Akinboye, O., Akintunde, A., Ayo-Bello, T., Ndubuisi-Ogbonna, L., Shobo, B., & Adefelu, A. (2022). Influence of Poultry Farmers Coping Strategies of High Cost of Feed on Food Security Status in South-west Nigeria. *Badeggi Journal of Agricultural Research and Environment*, *4*(3), 43–51. https://doi.org/10.35849/bjare202203/64/008

Akerele E. O; and Aderinto A. (2019). Effects of improved practices on poultry production in ogun state. *European Journal of Agriculture and Forestry Research*, *7*(1), 18–29.

Aromolaran, A. K., Ademiluyi, I. O., & Itebu, O. J. (2013). Challenges of small poultry farms in layer production in Ibadan Oyo State Nigeria. *Global Journal of Science Frontier Research Agriculture and Veterinary Sciences, 13*(2), 5–12.

Bickel, G., Nord, M., Price, C., Hamilton, W.L. and Cook, J. T. (2015). No Title. *American Journal of Plant Sciences*, *6*(4). www.fns.usda.gov/sites/default/files/FSGuide_0.pd

Bickel, G., Nord, M., Price, C., Hamilton, W., & Coo, J. (2000). Guide to Measuring Household Food Security. In *united states department of agriculture* (Vol. 6, Issue 4).

Choi, J., Dutz, M., & Usman, Z. (2020). The Future of Work in Africa. In *The Future of Work in Africa*. https://doi.org/10.1596/978-1-4648-1445-7

Daghir, N., Diab-El-Harake, M., & Kharroubi, S. (2021). Poultry production and its effects on food security in the Middle Eastern and North African region. *Journal of Applied Poultry Research*, *30*(1), 100110. https://doi.org/10.1016/j.japr.2020.10.009

Fakayode, S. B., Rahji, M. A. Y., Oni, O. A., & Adeyemi, M. O. (2009). An assessment of food security situations of farm households in Nigeria: A USDA approach. In *Social Sciences* (Vol. 4, Issue 1, pp. 24–29).

Ibrahim, S. B., Aminu, R. O., Arowolo, A. O., & Sanusi, A. (2022). *Research Article Does Access to Basic Services and Productive Assets Influence Agricultural Households' Dietary Diversity and Food Security? Evidence from Ogun State, Nigeria*. *39*(4).

Kehinde, A. D., & Kehinde, M. A. (2020). The impact of credit access and cooperative membership on food security of rural households in south-western Nigeria. *Journal of Agribusiness and Rural Development*, *57*(3), 255–268. https://doi.org/10.17306/j.jard.2020.01337

Mustapha, S., Tanko, M., & Alidu, A. F. (2016). Determinants of Household Food Insecurity in Northern Ghana: An Ordered Probit Approach. *Issn*, *7*(16), 2222–1700. www.iiste.org

N, Y., M, M., & M. J, I. (2019). Assessment of Technical Efficiency of Layer Production in Mampong Municipality: Stochastic Frontier Approach. *Current Research in Agricultural Sciences*, *6*(1), 20–28. https://doi.org/10.18488/journal.68.2019.61.20.28

Omodele T; and Okere I A. (2014). *identification of layers as the major commercial product of the poultry sector in Nigeria*. Livestock Research for Rural Development, Volume 26, Article #097.

Omonona, B. T., & Agoi, G. A. (2007). An analysis of food security situation among Nigerian urban households: Evidence from Lagos state, Nigeria. *Journal of Central European Agriculture*, *8*(3), 397–406.

Omotesho, O. A., Adewumi, M. O., Muhammad-Lawal, A., & Ayinde, O. E. (2006). Determinants of Food Security Among The Rural Farming Households in Kwara State, Nigeria. *African Journal of General Agriculture African Studies on Population and Health*, *2*(1), 7–15. http://www.asopah.org

Onyeaka, H., Ekwebelem, O. C., Eze, U. A., Onwuka, Q. I., Aleke, J., Nwaiwu, O., & Chionuma, J. O. (2021). Improving food safety culture in nigeria: A review of practical issues. *Foods*, *10*(8). https://doi.org/10.3390/foods10081878

Oyakhilomen, O., Daniel, A. I., & Zibah, R. G. (2015). Technical Efficiency-Food Security Nexus in Kaduna State, Nigeria: A Case Study of Poultry Egg Farmers. *Consilience: The Journal of Sustainable Development*, *14*(2), 244–259.

Rekwot, F. U., Owoshagba, G. Z., Ahmed, O. B., & Atiku. (2018). Challenges of poultry production in Nigeria: A review Anosike. *J. Anim. Prod*, *45*(1), 252–258.