Direct Research Journal of Agriculture and Food Science

Vol. 13(3), Pp. 157-xx October 2025

https://journals.directresearchpublisher.org/index.php/drjafs; https://www.ajol.info/index.php/drjafs

Research Article
ISSN: 2354-4147

Effects of Agricultural Insurance on the Financial Stability of Poultry Farms Towards Food Security and Poverty Reduction in Delta State, Nigeria

Solomon Enimu[1]*, Veronica Ikenga[1], and C.N. Nwachukwu[2]

[1]Department of Agricultural Economics, Faculty of Agriculture, Delta State University, Abraka, Nigeria.
[2]Department of Agricultural Extension, Faculty of Agriculture, Delta State University, Abraka, Nigeria.
Corresponding author email: solomonenimu@gmail.com

ABSTRACT

This work is designed to evaluate the effects of agricultural insurance on the financial stability of poultry farms towards food security and poverty reduction in Delta State, Nigeria. A multi-stage random sampling technique was adopted in the selection of 270 poultry farmers for the study. Primary data were collected using a well-structured questionnaire fashioned based on the specific objectives and data collected were analysed using both descriptive and inferential statistic such as frequency, percentage, mean, standard deviation, Likert type scale ranting and logistic regression model. Results from the findings showed that the mean age was 48 years with 59.2% of the farmer's female. The results show that 60% of the respondents had up to secondary education with mean farm size of 2.10ha. The mean household size was 5 persons with 11 years farming experience. About 75% of the respondents did not belong to a cooperative society, 71.7% of them married with mean income of N320, 536.66. Only 39.2% are aware of agricultural insurance. The probit model showed that the age of farmers, educational level, premium rate, farm size, accessibility to credit, gender, awareness and land tenure influenced farmer's decision to adopt agricultural insurance as a climate change adaptation strategy by arable crop farmers in Delta State. The major constraints encountered were inadequate knowledge, high premium, and delay in assessment of losses, delay in claim payment, administrative bureaucracy and lack of confidence in the institution. It is recommended that government and other stakeholders' efforts should be directed towards policies and programmes that will further enhance those factors that increase farmers' adoption of agricultural insurance towards food security and poverty reduction in Delta and Nigeria in general.

Keywords: Agriculture, Insurance, Stability, Food Security, Poverty

Received 5 August 2025
Accepted 20 September 2025
Published 23 October 2025
https://doi.org/10.26765/DRJAFS48905898

Citation: S. Enimu, V. Ikenga, and C.N. Nwachukwu (2025). Effects of Agricultural Insurance on the Financial Stability of Poultry Farms Towards Food Security and Poverty Reduction in Delta State, Nigeria. *Direct Research Journal of Agriculture and Food Science*. Vol. 13(3), Pp. 157-xx.

INTRODUCTION

Poultry farming refers to the small or large-scale practice of raising domesticated birds such as chicken, geese, turkey, duck and guinea fowl. These birds, typically from the Superorder Galloanserae (commonly called 'fowl'), are

usually raised for meat, eggs and agricultural by-products including fertilizers and feathers (Rama-Rao, 2020; Wilson, 2021; Alders et al., 2018). Poultry birds are of significant economic value to people for the products and by-products they produce. These products can be consumed as food, or kept and traded as a source of income (Attia et al., 2022). Furthermore, the rearing of poultry can serve as a source of livelihood especially in developing countries and rural areas (Akinola & Essien, 2011).

According to Adeyonu et al. (2021), the Nigerian poultry industry comprises a total of about 180 million birds. This places it as the second largest poultry industry in Africa (Olutumise et al., 2023). Bamidele and Amole (2021) posit that 65-77% of the industry is found in "smallholder, subsistence-oriented" farms and households. It is noted to contribute about 30% of total agricultural production and 8% of Gross Domestic Product (GDP) to the Nigerian economy (Olutumise et al., 2023). However, poultry farming in Nigeria is characterized by considerable risks and uncertainties. Multiple studies have identified some of the major risks of poultry farming in Nigeria to include: lack of access to good veterinary services, poor transportation network, lack of processing and storage infrastructure, price fluctuations for raw materials and finished goods, lack of investment, disease outbreaks, market saturation and crime (Adepoju et al., 2013; Banjoko et al., 2015; Adeyonu et al., 2021). These adversities justify the need for agricultural insurance on capital and goods in the Nigerian poultry farming scene. Abdul (2012) defines agricultural insurance as a form of risk management whereby agricultural property is financially secured against production risks by transfer of costs of potential damage to a third party via payment of a premium that reflects and qualifies the actual costs of the insured property.

There are various types of agricultural insurance. They may cover natural disasters, poor yield, cost price fluctuations, income fluctuations or any combination of the above (Abdul, 2012; Zeng et al., 2022). Agricultural insurance is important for farmers, especially smallholder farmers in less developed areas who have less sophisticated production and storage infrastructure, and are more vulnerable to natural and economical risks (Ankrah et al., 2021).

ARC. (2023) In Nigeria, agricultural insurance is overseen publicly by the National Agricultural Insurance Corporation (NAIC) which runs the National Agricultural Insurance Scheme (NAIS) and the Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL), and privately by various private insurance companies licensed to do so by the National Insurance Commission (NAICOM) (Ajieh, 2010; Anaesoronye, 2023).

Poultry insurance is a type of agricultural insurance (Ajieh, 2010). Poultry farming in Nigeria is typically subject to disease outbreaks, market fluctuations, poor yield and lack of access to credit facilities (Francis et al., 2020) and multiple studies have shown that poultry insurance has a significant effect on the outcomes of poultry farming in Nigeria (Okoruwa et al., 2023; Agboola et al., 2021). However, a low percentage of Nigerian poultry farmers have adopted the use of insurance. Akintunde, O.K. (2015) This is due, among other things, to protracted processes for settlement, lack of education on insurance, high administrative costs and difficulty of access to insurance facilities (Adeyonu et al., 2016).

The need for wider acceptance of poultry insurance in the Nigerian agricultural sector necessitates research into the mechanisms, processes and outcomes of undertaking insurance among farmers in Nigeria. This study therefore examines the effect of agricultural insurance on farmers in a specific geographical location within the context of financial stability to the farmers, with intention to provide a referable body of knowledge on the attitudes of farmers within the region to agricultural insurance and the outcomes of insurance undertaking and help influence the policy and law making within the region and bring about positive outcome for the farmers and the economy at large towards achieving the sustainable development goals.

Statement of the Problem

Agricultural insurance is an important tool for risk management in the agricultural sector, but its effectiveness in improving the financial stability of poultry farmers in the study area has not been fully studied.

The vital role of poultry production to both farmers and the nation in general cannot be achieved if there is no effective utilization of insurance services by poultry farmers through the National Agricultural Insurance Corporation (NAIC).

Despite the existence of insurance services rendered by Nigerian Agricultural Insurance Corporation (NAIC), there has been low level of participation of farmers buying insurance premium and in view of this, there is need to carefully examine the utilization of farmers about agricultural insurance provided by the scheme. Therefore, there is need to examine the factors influencing farmers utilization of insurance services covered in their various forms and determine how farmers access to and use of agricultural insurance can be improved in the region.

This study is therefore designed to provide answer to the following research questions

1) What are the socio-economic characteristics and the income level of the poultry farmers?
2) What is the level of insurance service usage by poultry farmers in study area?
3) How does participation in agricultural insurance affect the productivity and income of poultry farmers?
4) What are the factors that influence the adoption of agricultural insurance among poultry farmers in study area?
5) What are the key constraints that hinder the adoption of agricultural insurance among poultry farmers in the study area?

Table 1: Socioeconomic Characteristics of Respondents

Variables	Frequency = 270	Percentage = 100	Mean
Age (years)			
<40	32	11.7	
40-49	130	48.3	43 years
50-59	86	31.7	
>59	22	8.3	
Gender			
Male	160	59.2	
Female	110	40.8	
Education			
No formal education	27	10.0	
Primary education	63	23.3	
Secondary education	162	60.0	
Tertiary education	18	6.7	
Farm size (ha)			
<1	14	5.0	
1-2	161	60.0	1.2
>2	95	35.0	
Household size			
1-4 persons	128	47.5	
5-8	137	50.8	7persons
9-12	5	1.7	
Farming experience			
1-5 years	16	5.8	
6-10	79	29.2	12 years
>10	175	65.0	
Member of cooperative			
Member	68	25.0	
Non-member	202	75.0	
Marital status			
Married	194	71.7	
Single	61	22.5	
Divorced	11	4.2	
Widow/er	5	1.7	
Income level (₦)			
<300,000	207	76.7	
300,000-350,000	27	10.0	₦ 320,556.66
350,001-400,000	22	8.3	
>400,000	13	5.0	
Land owner			
Bought	61	22.5	
Inherited	36	13.3	
Family land	74	27.5	
Lease	99	36.7	
Premium rate			
High	164	60.8	
Low	106	39.2	

Source: Field survey (2025)

Objectives of the Study

The aim of this study is to examine the effects of agricultural insurance on the financial stability and productivity of poultry farmers in Delta state. The specific objectives are to:

1. Identify the socio-economic characteristics of the poultry farmers.
2. Ascertain the level of usage of insurance services by poultry farmers in the study area.
3. Evaluate the relationship between participation in agricultural insurance and poultry farmers' productivity and income.
4. Determine factors that influence adoption of Agricultural insurance by poultry farmers.
5. Identify factors that constraint the adoption of agricultural insurance among poultry farmers in the study area.

Material and Methods

Study Area and Sampling Procedure

The study was carried out in Delta state. A multistage sampling procedure was adopted in the selection of respondents for the study. A total sample size of two

hundred and seventy (270) was used.

Data Collection

Primary data were used for the study. This was achieved through the use of structured questionnaires administered to the sampled farmers. Some trained enumerators who are well grounded in English and local language of the people also assisted in the administering of the questionnaire.

Method of data Analysis

Data generated from the study were analyzed using descriptive analysis such as frequency distribution, percentages, means and tables to achieve objectives (i), (iii), and (v). Objective (ii) was achieved using 4-point Likert type scale, objective (iv) was determined using the logistic regression model

Model specification

The choice of the logit model is because the dependent variable is a binary (dummy) which takes the values, 0 or 1. Where the dependent variable is a dummy, the two models often used are the logit and probit regression models.

The logit model is however, computationally easier, thus, it was selected for this study. It is specified as follows:
$\text{Ln } CP/(I\text{-}Pi) = B_o + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + \ldots\ldots\ldots B_{10}X_8 + ei$

Where

Pi = probability of farmers utilization of insurance services
1 – Pi = probability of not utilizing insurance services
B_o = intercept
B_1 (1, 2,3,4,5 ……. 10) = Regression coefficients
X_1 (1, 2,3,4,5 ……...10) = Independent variables and
ei = Error term.
The independent variables specified as factors affecting the utilization of insurance services are defined below
X_1 = Educational level
X_2 = Awareness of insurance (Yes =2, No =1)
X_3 = Premium payment (Yes =2, No =1)
X_4 = Farming experience (years)
X_5 = Attitude towards insurance taking (Positive = 2, Negative = 1)
X_6 = Accessibility to credit (Yes = 2, No =1)
X_7 = Sex (Male or Female).

Results and Discussion

Socioeconomic Characteristics of Respondents

Age: The result reveals that 58 respondents representing 48.3% were within 40-49 age brackets, 31.7% fell within 50-59 years age bracket. The result unveiled that 11.7% were in the age bracket of less than 40 years while 8.3% of respondents were aged over 59 years who were the least. The mean age was 48 years. This showed that majority of the farmers were mature enough and could relate well with poultry farming because the decision of the farmer to adopt a new policy can be affected by age distribution.

Gender: The results shown in (Table) 1 indicate that 59.2% of the respondents were male and 160 respondents representing 40.8% were female. The findings show that there is gender imbalance in poultry farming. This signifies that more men than women participate in adopting agricultural insurance for poultry farming towards food security and poverty reduction. This has been in line with most of the studies in literature. Most studies show that male individuals and households headed by males are more likely to become members of insurance schemes, since men are in most cases are exposed to the consequence of health shocks (Owusu et al., 2012).

Education: The result showed that majority of the respondents (60.0%) had secondary education, 23.3% had primary school education in which 6.7% of them were tertiary degree holders while 10% has no formal education. This shows that majority of the farmers are quite educated and thus can relate to issues regarding insurance and risk management towards food security.

Marital status: The result shows that 71.7% of them are married, 22.5% are single, 4.2% divorced and only 1.7% widow/er. It means that most of the respondents in the study area are married. This suggests that poultry farming is a means of catering for the family in the study area.

Household size: Household size between 5 and 8 formed the majority (50.8%) of the total number of the respondents. It was observed that 47.5% of the respondents have household size of 1-4 persons. The average household size was 5 persons signifying that the size was fairly large enough to influence the patronage of agricultural insurance for new technology adoption.

Income level: Quite a large number of the respondents (76.7%) earned less than N300,000 from their arable crop farming. About 10% of respondents earned between N300,001-N350,000 annually, 8.3% earned N350,001-400,000 annually while 5.0% of respondents earned greater than N 400,000 annually. The mean income was N 320,556.66k. Wealth is believed to reflect past achievements of households and their ability to bear risks. Dividing this by 12 (the number of months in a years) gives N6,689.86, which is less than N18,000 (the official Minimum Wage in Nigeria). This suggests that the arable crop farmers were less financially better than their counterparts in Nigerian civil service.

Farming experience: The farming experience of the farmers' reveals that majority (65%) of respondents are having farming experience of greater than 10 years. This was followed by 29.2% having farming experience of 6 and 10 years while the least 5.8% of them had 1-5 years. Furthermore, the mean farming experience of the farmers is 11 years. This implies that poultry farming is an age-long venture in the study area.

Farm size: (Table) 1 indicates that 5% of the respondents hold less than 1.0ha of farm land while 60% have between 1.0 and 2.0 ha of land and 35.0% hold above 2 ha of land. Farmers who have larger farms size are also willing to patronize more than the small and poor farmers.

Member of cooperative: (Table) 1 also reported that 75.0% of the respondents did not belong to a cooperative society while only 25.0% belong to cooperative society.

Land ownership: The results presented in (Table) 1 shows that 36.5% acquired land through leasehold, family land 27.5%, 13.3% are through inheritance while 22.5% of the farmers bought the land used for the poultry production.

Awareness Agricultural Insurance Adoption by the Poultry Farmers

Table 2: Level of Awareness of Agricultural Insurance

Awareness	Frequency	Percentage
Yes	106	39.2
No	164	60.8

Source: Field survey (2025)

Respondents were asked whether they have heard of agricultural insurance (Table 2). The results of the survey show that 39.2% of farmers have reacted positively and reported that they had an idea about agricultural insurance scheme. On the other hand, 60.8% of farmers responded that they knew nothing about agricultural insurance.

Production System used in a Poultry Farm

Table 3: Production system used in a poultry farm

Production system used	Frequency	Percentage (%)
Extensive (free range) system	31	11.5
Semi-intensive system	133	49.3
Intensive system	262	97.0
Semi-intensive and extensive system	270	100
Total	**270**	**100**

Source: Field Survey, 2025. (Multiple choice response recorded)

Table 3 present the distribution of respondents based on the production systems used in pig farms. The extensive (free range) system is used by 11.5% of respondents, involves allowing poultry to roam freely over a large area, enabling them to forage for food and exhibit natural behaviors. The semi-intensive system by 49.3%, the intensive system by 97.0%, and a combination of semi-intensive and extensive systems by 100%. This result implies that farmers using the intensive system may achieve higher growth rates and productivity due to optimized feeding and disease management. However, this system requires significant investment in infrastructure and inputs, and there may be concerns regarding animal welfare and environmental impact.

Average Cost of Production

Table 4. Average cost of poultry production

ITEMS	TOTAL COST (₦)
Day old chicks	4137481.48
Point of lay chicks	7263657.41
layers	5170680.56
Drugs and medication	2363098.15
Veterinary service	1219484.18
Feed	20182562.96
Labor	3952261.11
Transport	2340127.78
Total variable cost (TVC)	**46629353 .63**
Building	12743598.00
Equipment	4348733.00
Total fixed cost	**17092331.00**
Total cost	**63721684.63**

Source: Computed from field data, 2025

The economic analysis of poultry production in the Delta States reveals important insights into the cost structure and profitability of the venture. The production process involves several crucial components, each contributing to the overall expenses and outcomes. The expenditure result showed that a day old chicks amounts to ₦4137481 .48. Point of lay, incur a higher cost of ₦7263657 .41 chicks represent another substantial expense at ₦5170680.56. Ensuring the health of the poultry birds is paramount, as reflected in the expenses for drugs and medication amounting to ₦2363098.15, and veterinary services, which account for ₦1219484.18. These costs emphasize the essential investments required for maintaining the well-being of the animals and preventing potential diseases. The provision of adequate feed is a major ongoing expense in poultry farming, with a total cost of ₦20182562.96. This highlights the need for consistent and high-quality nutrition to ensure optimal growth and productivity of the birds. Labor is a substantial component of the cost structure, with a significant expense of ₦3952261.11. This underscores the labour-intensive nature of poultry farming, from daily care to managing various aspects of the operation. Transportation costs, amounting to ₦2340127.78 indicate the logistical requirements involved in moving birds and related resources, which can impact both the welfare of the animals and the overall efficiency of the production process. The Total Variable Cost (TVC) amounted to ₦46629353.78 reflecting the cumulative expenses associated with the birds, their care, and the resources needed for their growth and maintenance. The expenditure on building facilities is ₦12743589.00 while equipment

Table 5. Profitability of poultry production

Parameters	Amount (₦)
Total Revenue (TR)	95835742.72
Total variable cost (TVC)	46629323.63
Total fixed cost	17092331.00
Total cost	63721684.63
Gross Margin (MG) = TR- TVC	49206419.09
Net Return(NR) GM-TFC	32114088.09
Benefit-Cost-Ratio = TR/TC	1.504

Source: Field Survey data, 2025

Table 6: Factors Influencing Insurance Patronage by Poultry Farmers

Variables	Coeff.	Std.Err	Z	p>/z/
Age	0.0346844	0.0138491	2.50**	0.012
Education	0.868579	0.2836191	3.06**	0.002
premium rate	-1.441377	0.549524	-2.62**	0.009
Gender	-0.7155524	0.333245	-2.15**	0.032
Stocking size	0.2542676	0.1091518	2.33**	0.020
Farming experience	-0.070333	0.0535173	-1.31	0.189
Income	2.06e-06	2.65e-06	0.78	0.438
Access to credit	0.745768	0.1751136	4.26***	0.000
Awareness	2.600797	0.5949656	4.37***	0.000
Land ownership	-0.7312929	0.3369231	-2.17**	0.030
Cooperative membership	-0.0860943	0.320772	-0.27	0.788
Constant	-0.8509641	1.061951	-0.80	0.423
Log likelihood	-67.282			
LR Chi 2 (11)	93.08			
Prob>Chi 2	0.000			
Pseudo R2	0.791			

Source: Field survey (2025)

costs amount to ₦4348733.00. These costs represent investments in infrastructure that contribute to the long-term sustainability and efficiency of the operation. The Total Fixed Cost (TFC) amounted to ₦17092331.00 indicating the consistent financial outlay required for maintaining the physical assets and equipment. The Total Cost (TC) structure of poultry production amounts to ₦63721684.63. This figure encapsulates the sum of variable and fixed costs, representing the comprehensive financial commitment involved in running a poultry farming enterprise. (Table 4)

Profitability of Poultry Production

The Profitability analysis indicated that the Total Revenue (TR) generated from the venture is ₦95835742.72, while the Total Variable Cost (TVC) and Total Fixed Cost (TFC) sum up ₦46629323.63 and ₦17092331.00, respectively. The Gross Margin (GM) is ₦49206419.09, signifying the earnings remaining after deducting variable costs from revenue. Despite the significant costs involved, the venture showcases profitability as indicated by the positive Gross Margin, Net Return, and the favorable Benefit-Cost Ratio. (Table 5)

Determinants of Agricultural Insurance Patronage by Poultry Farmers

The parameters of the Probit regression model were estimated and the results are presented in (Table) 6. The Chi-square statistic of 93.08 ($p < 0.00$) obtained shows that the model gave a good fit for the analysis and a pseudo R^2 of .791confirming a 79% fit.

Age of the Respondents

Age of the respondent is significant at 5% and positively influences the tendency of taking agricultural insurance by poultry farmers towards food security and poverty alleviation. This means that the older a farmer is, the higher his likelihood to participate in agricultural insurance scheme. This could be largely due to less receptivity of older farmers to innovation unlike young educated farmers who have high receptivity to innovations. This result is consistent with similar studies by Jehu-Appiah (2011) that the greater an individual's age, the more likely his/her insurance enrolment.

Education

The coefficient of educational level of the farmers was found to be positive and significant at 1% and this conforms to the a priori expectation that the higher the educational level of farmers, the higher their participation in agricultural insurance scheme towards poverty reduction. This result is strongly in agreement (Olubiyo et al. 2009); (Masoumi and Khodadadi 2025); Falola, Banjoko and Ukpebor, 2015. This is contrary to (Raju and Chand 2008) findings that level of education, did not show any significant influence on insurance uptake in India.

Table 7: Constraints faced by Poultry Farmers Patronage of Agricultural Insurance

Constraints	Frequency = 270	Percentage = 100	Ranking
Inadequate knowledge of agricultural insurance	179	66.3	8th
Lack of confidence in the institution	245	90.7	6th
High premium payment	268	99.3	4th
Fear of the unknown	123	45.6	11th
Logistics in the schemes	234	86.7	7th
Administrative bureaucracy	270	100	1st
Delay in claim payment	262	97.0	5th
Delay in assessment of losses	269	99.6	2nd
Rigorous procedure in claim settlement	266	99.8	3rd
Inaccessibility to insurance personnel	167	61.9	9th
Distance to insurance office from locality	143	53.1	10th

Source: Field survey (2025) *multiple responses recorded*

Literacy has a positive relationship with the willingness of farmers to adopt agricultural insurance scheme (Aidoo et al., 2014; Arshad et al., 2015; Koloma, 2015). More educated farmers are likely to appreciate crop insurance issues better than their less educated counterparts. Therefore, education may facilitate the diffusion of new technology and as such has a positive relation with innovation adoption and the payment of accompanying charges.

Premium rates

The coefficient of premium rate of the farmers was found to be negative and significant at 5% and this conforms to the a priori expectation that the higher the premium rate of farmers, the decrease in their interest for agricultural insurance. Higher premium rates result in substantially lower levels of participation in agricultural insurance programs (Smith and Watts 2009). Similarly, (Arshad et al. 2015) reported that the increase in premium rate decreases the levels of participation in agricultural insurance programs by 0.03.

Gender

The coefficient of gender was found to be negative and significant at 5% level. This result reveals that male farmers were more willing to take agricultural insurance in the study area with a marginal effect of 0.72% compared to their female counterparts. This is in agreement with Wan (2014) findings that there is a significant relationship between gender and breeding sow insurance uptake in China.

Stocking size

The coefficient of stocking size indicates a positive and significant relationship with willing to pay poultry insurance. This implies that increase in stocking size have a positive probability that an poultry farmer will purchase an insurance policy cover. In other words, farmers who have larger farm size are more likely to use an insurance policy. This result is consistent with the study by Gininda et al. (2014), Farayola et al (2013).

Access to credit

The coefficient of accessibility to credit by the farmers was found to be positive and significant at 5% implying that farmers that have access to credit are more likely to participate in the programme than their members who do not have access to credit which was evident in the response of most farmers that access to loans from banks is better facilitated when they have insurance cover and therefore, they subscribe to insurance scheme so as to increase their accessibility to loans. This concurs with the submission of (Farayola et al., 2013). They all submitted that access to credit and decision to participate in the scheme were positively correlated.

Awareness

The coefficient of Awareness was significant at 1% having a positive influence on the willingness to take agricultural insurance. The result reveals that the marginal effect on probability of farmers taking agricultural insurance with respect to awareness is 2.600797, implying that for every unit increase in the awareness among the farmers, the likelihood of taking agricultural insurance increases by 2.600797 in line with the findings of (Akinola, B. D. (2014)) that as the level of awareness of the farmers about insurance increase, the probability of patronage also increases

Land ownership

Land ownership was significant at 5% significance level and inversely related to the probability of farmers being interested in agricultural insurance. This may be due to the fact that farmers who own lands do not have to pay anything to anybody in times of failure but rather manage the little at their disposal. This result is contradictory with (Akter and Brouwer 2007) findings that Landowners are significantly more willing to buy crop insurance scheme

than landless farmers in Bangladesh.

Constraints Encountered by Poultry Farmers in their Adoption of Agricultural Insurance

The result of analysis of constraints encountered by poultry farmers in adopting agricultural insurance in the study area ranked from most critical to the least as presented in Table 7 showed that administrative bottlenecks which stems from excessive bureaucracy ranked 1st and accounted (100%) and this constraint has the tendency of making the farmers withdraw from insurance scheme because of the excessive bureaucratic processes in the operation of insurance, delay in assessment of losses ranked 2nd (99.6%) while rigorous procedure in claim settlement ranked 3rd (99.8), This was followed by high premium payment 4th (99.3%), delay in claim payment 5th (97.0%). The payment of indemnity by insurance companies was indicated to be untimely and inadequate by most of the farmers and this affected their perception of Agricultural insurance scheme as they tend to believe that insurance companies are only interested in collecting premium and not paying indemnity when due.

Lack of confidence in the institution accounted for 90.7% and ranked 6th, logistics in the scheme ranked 7th and accounted for (86.7%), and inadequate knowledge of agricultural insurance ranked 8th accounting for 66.3%. The other constraints such as inaccessibility to insurance personnel ranked 9th and accounted for 61.9%, distance to insurance office from locality ranked 10th and accounted (53.1%). The least constraint was fear of the unknown which ranked 11th and accounted 45.6%. It is interesting to note that if these constraints are looked into, other impediments may cease to exist or reduce to minimum in the study area.

Conclusion and Recommendations

Agricultural insurance has not been popularly adopted by the farmers in the study area. By implication therefore, government policies aimed at enhancing and sustaining food production without effective agricultural insurance may not meet with huge success. Agricultural poultry production insurance is known to be one of the risk management options employed by farmers to supplement any loss or damage incur in their farming business. It is an effective tool for risk management in agriculture and its interest by poultry farmers is dependent on many factors. This study concludes that age of farmers, educational level, premium rate, farm size, accessibility to credit, gender, awareness and landownership experienced in the farm in previous year determine farmers' decision to adopt agricultural insurance as a climate change adaptation strategy. Based on the findings, the following recommendations were suggested:

1. Proper sensitization of poultry farmers on the importance of insurance policy by government,
2. non- governmental agro services providers and Insurance Corporation.
3. Insurance corporation should ensure prompt and timely delivery of their services to poultry farmers and ensure effective and efficient mode of assessment and payments as at when due.
4. Poultry farmers should be sensitized on the benefits of being insured as the scheme stabilizes farmers' income with more investment decision.
5. Premium rates paid by the farmers should be subsidized by government.
6. The major constraints identified affecting agricultural insurance adoption should be adequately addressed as soon as possible.
7. Technical assistance from insurance extension agents should be provided.
8. Government should assist farmers to easily access farm inputs for optimum production towards food security and poverty reduction.

Acknowledgement

We wish to sincerely appreciate and acknowledge the financial and technical roles of TEFUND towards the actualization of this academic feet and the management of Delta State University, Abraka for finding us capable for an elaborate academic research project. They stood and guide the process from the beginning to the end.

REFERENCES

Owusu, S. Dosoo, D. K., Kayan, K., Adu-Gyasi, D., Kwara, E., Ocran, J., Osei-Kwakye, K.(2012). Haematological and biochemical reference values for healthy adults in the middle belt of Ghana. *PloS one*, *7*(4), e36308.

Olubiyo, S. O., Hill, G. P., & Webster, J. P. G. (2009). Econometric analysis of the impact of agricultural insurance of farming systems in the middle belt, Nigeria. *African Journal of Food, Agriculture, Nutrition and Development*, *9*(6).

Masoumi, A. &, Khodadadi M. (2025). Recent drying technologies used for drying poultry litter (principles, advantages and disadvantages): A comprehensive review. *Poultry Science*, *104*(2), 104677.

Abdul, R.I. (2012). Agricultural insurance schemes for the development of rural economy. In Agrarian Economy and Rural Development – Realities and Perspectives for Romania (pp. Bucharest: The Research Institute for Agricultural Economy and Rural Development (ICEADR).

Farayola, C. O., Adedeji, I. A., Popoola, P. O., & Amao, S. A. (2013). Determinants of participation of small scale commercial poultry farmers in agricultural insurance scheme in Kwara State, Nigeria. *World Journal of Agricultural Research*, *1*(5), 96-100.

Adepoju, A.O., Timothy, O.A., and Oyekale, A.S. (2013). Risk Coping Behaviors of Small Scale Poultry Farmers in Ogun State, Nigeria. Asian Journal of Animal and Veterinary Advances, 8(9), 786-795.

Adeyonu, A.G., Otunaiya, A.O., Oyawoye, E.O., Okeniyi, F.A., and Boateng, J.K. (Reviewing editor). (2021). Risk perceptions and risk management strategies among poultry farmers in south-west Nigeria. *Cogent Social Sciences,* 7(1). https://doi.org/10.1080/23311886.2021.1891719

Adeyonu, A.G., Oyawoye, E.O., Otunaiya, A.O., and Akinlade, R.J. (2016). Determinants of Poultry Farmers' Willingness to Participate in National Agricultural Insurance Scheme in Oyo State, Nigeria. Applied Tropical Agriculture, 21(3), 55-62.

Agboola, T.O., Akintunde, O.K., Adedire, A.O. and Jimoh, I.O. (2021). Evaluation of the relationship between participation in agricultural insurance and income poultry farmers in Osogbo ADP zone, Osun State, Nigeria. Nigerian J. Anim. Sci. 2021, 23 (1): 108-115.

Ajieh, P.C. (2010). Poultry Farmers response to Agricultural Insurance in Delta State, Nigeria. Journal of Agricultural science, 1: 43-47.

Akintunde, O.K. (2015). Determinants of Poultry Farmers Participation in Livestock Insurance in Southwest Nigeria Asian Journal of Poultry Science, 9:233-241.

Akter, S. and Brouwer, R. (2007). *Crop insurance in Bangladesh: protecting poor farmers against natural disasters?* (Though sometimes this is found referenced within later studies as Akter and Brouwer (2007)).

Gininda, P. S., Antwi, M. A., & Oladele, O. I. (2014). Smallholder sugarcane farmers' perception of the effect of micro agricultural finance institution of South Africa on livelihood outcomes in Nkomazi local municipality, Mpumalanga Province. Mediterranean Journal of Social Sciences, 5(27), 1032-1040.

Koloma, Y. (2015). Crop microinsurance for maize farmers in Burkina Faso: access and agriculture performance in the Dandé village. Strategic Change: Briefings in Entrepreneurial Finance, 24(1), 115.

Arshad, M., Zaidi, S. M. I. H., & Mahmood, K. (2015). Self-esteem & academic performance among university students. Journal of education and practice, 6(1), 156-162.

Akinola, B. D. (2014). Determinants of Farmers' Adoption of Agricultural Insurance: The Case of Poultry Farmers in Abeokuta Metropolis of Ogun State, Nigeria. British Journal of Poultry Sciences, 3, 36-41.

Akinola, L. A. F., & Essien, A. (2011). Small-Scale Family Poultry Production. *World's Poultry Science Journal*, *67*.

Alders, R.G., Dumas, S.E., Rukambile, E., Magoke, G., Maulaga, W., Jong, J., and Costa, R. (2018). Family poultry: Multiple roles, systems, challenges, and options for sustainable contributions to household nutrition security through a planetary health lens. *Maternal & child nutrition*, *14 Suppl 3*(Suppl 3), e12668. https://doi.org/10.1111/mcn.12668

Anaesoronye, M. (2023, October 6). KBL Insurance gets NAICOM nod for agric insurance. Business Day. https://businessday.ng/companies/article/kbl-insurance-gets-naicom-nod-for-agric-insurance/

Aidoo, R., Danfoku, R. A., & Mensah, J. O. (2014). Determinants of postharvest losses in tomato production in the Offinso North district of Ghana. *Journal of development and agricultural economics*, *6*(8), 338-344.

Ankrah, D.A., Kwapong, N.A., Eghan, D., Adarkwah, F., and Boateng-Gyambiby, D. (2021). Agricultural insurance access and acceptability: examining the case of smallholder farmers in Ghana. Agriculture & Food Security, 10(1), 19. https://doi.org/10.1186/s40066-021-00292-y

ARC. (2023). African Risk Capacity Strategic Framework. https://www.arc.int/arc-strategic-framework

Attia, Y.A., Rahman, M.T., Hossain, M.J., Basiouni, S., Khafaga, A.F., Shehata, A.A., and Hafez, H.M. (2022). Poultry Production and Sustainability in Developing Countries under the COVID-19 Crisis: Lessons Learned. *Animals: an open access journal from MDPI*, *12*(5), 644. https://doi.org/10.3390/ani12050644

Bamidele, O., and Amole, T.A. (2021). Impact of COVID-19 on Smallholder Poultry Farmers in Nigeria. *Sustainability, 13*(20), 11475. https://doi.org/10.3390/su132011475

Banjoko, I. K., Falola, A., Babatunde, F. B., & Atolagbe, R. (2015). Assessment of risks and uncertainties in poultry farming in Kwara State, Nigeria. *Science, Technology and Arts Research Journal*, *3*(4), 64-70.

Raju, S. S., & Chand, R. (2008). Agricultural insurance in India: Problems and prospects. *National Center for Agriculture Economics and Policy Research, NCAP working paper,(8)*.

Arshad, M., Kächele, H., Krupnik, T. J., Amjath-Babu, T. S., Aravindakshan, S., Abbas, A., ... & Müller, K. (2017). Climate variability, farmland value, and farmers' perceptions of climate change: implications for adaptation in rural Pakistan. *International Journal of Sustainable Development & World Ecology*, *24*(6), 532-544.

Hansen, J. W., Araba, D., Hellin, J., & Goslinga, R. (2017).A roadmap for evidence-based insurance development for Nigeria's farmers. CCAFS Working Paper no. 218. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security.

Okoruwa, V.O., Oladokun, S.A., Amaghionyeodiwe, C.A., and Anizoba, D.C. (2023). Double Hurdle Analyses of Factors Influencing the Participation of Poultry Farmers in Insurance in Afijio Local Government, Oyo State. Nigerian Agricultural Journal, 54(1), 369.

Olutumise, A.I., Oladayo, T.O., Oparinde, L.O., Ajibefun, I.A., Amos, T.T., Hosu, Y.S., and Alimi, I. (2023). Determinants of Health Management Practices' Utilization and Its Effect on Poultry Farmers' Income in Ondo State, Nigeria. *Sustainability, 15*(2298). https://doi.org/10.3390/su15032298Top of Form

Rama-Rao, Karri.(2020). Introduction To Poultry Farming. https://www.researchgate.net/publication/370471517introductiontopoultryfarming

Wilson, R.T. (2021). An Overview of Traditional Small-Scale Poultry Production in Low-Income, Food-Deficit Countries. Annals of Agricultural and Crop Science, 6(3), 1077. https://austinpublishinggroup.com/agriculture-crop-sciences/fulltext/aacs-v6-id1077.php

Zeng, S., Qi, B., and Wang, M. (2022). Agricultural Insurance and Agricultural Economic Growth: The Case of Zhejiang Province in China. International journal of environmental research and public health, 19(20), 13062. https://doi.org/10.3390/ijerph192013062.