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## Assessment of Agricultural Insurance Literacy Levels Among Agripreneurs in Obio-Akpor Local Government Area Rivers State, Nigeria

Ugwuja, V. C. and Otu P. E.

Department of Agricultural Economics and Agribusiness Management, University of Port Harcourt, Nigeria

Corresponding author's e-mail: [vivian.ugwuja@uniport.edu.ng](mailto:vivian.ugwuja@uniport.edu.ng)

### Abstract

*This study examined agricultural insurance literacy level among agripreneurs in Obio-Akpor, Local Government Area, Rivers State, Nigeria. Specific objectives of the study were to identify the socio-economic characteristics of the agripreneurs; assess the level of agricultural insurance literacy among agripreneurs; assess the factors that influence the level of agricultural insurance literacy among agripreneurs and examine the perception of agripreneurs on agricultural insurance scheme in the study area. Data were collected with the aid of structured questionnaire, administered on eighty (80) agripreneurs. The data were analyzed using descriptive statistics and binary logit regression model. The result shows that 57.5% of the agripreneurs were in the age bracket of 31-40 years, 72.5% female, with 90% married and 72.5% household size was between 4-6 members. While 71.3% of the agripreneurs had secondary school education. The binary logit regression analysis shows that gender and farming association membership were statistically significant at 1% with -1.96 and 2.99 coefficient respectively influencing the levels of agricultural insurance literacy among agripreneurs. The study therefore, recommends that agripreneur should endeavour to insure their businesses against losses; agripreneurs should join farmers' associations to be enlightened on benefit of insurance cover*

**Keywords:** Agripreneurs, losses, indemnity, insurance literacy, premium

### 1.0 Introduction

Agricultural production, a cornerstone of global food security, faces persistent challenges from unpredictable weather conditions, market volatility, and other natural calamities. These issues disproportionately affect smallholder farmers, who often lack the financial safety nets necessary to mitigate such risks. Agricultural insurance has emerged as a critical tool in promoting resilience and sustainability within the sector. Recent studies have shown that insurance not only enhances farmers' risk tolerance but also incentivizes investments in modern agricultural practices, such as mechanization and advanced crop management systems, contributing significantly to rural revitalization and poverty alleviation efforts (Fu et al 2024)

However, the risks that many agribusiness owners encounter vary depending on the crop, farming method, agro-ecological factors, and institutional and regulatory frameworks. However, weather risk has been identified as the main risk that poses a significant obstacle for agribusiness owners.

To guarantee the plan of correct implementation of Agricultural Insurance scheme in Nigeria, a 1993 decree created the Nigerian Agricultural Insurance Corporation (NAIC), a public sector organisation.

The objectives of the agricultural insurance program are to: encourage financial institutions to lend money for agricultural investments; increase agricultural investment to promote agricultural production; reduce the need for ad hoc assistance from the federal government in the event of a natural disaster that could negatively impact agricultural investments; and give farmers financial support in the event of natural hazards brought on by climate change (Olayinka, 2018).

The three main areas of NAIC's operations are commercial lines, livestock (including poultry and fisheries), and crop insurance. The company is also authorised to underwrite general non-life insurance. NAIC



provides a single salvaged-based loss of input cost crop insurance policy under crops insurance that gives multiple peril crop insurance (MPCI) protection against a variety of biological and natural hazards, such as windstorms, fire, drought, floods, and pests and diseases. The difference between the insured farmer's input costs up until the point of loss and the actual retainable harvestable production or salvage that the insured obtained on his farm determines the payouts for input costs in the event of a claim (Olayinka, 2018). The death or injury resulting from an accident, disease, fire, lightning, storm, or flood is covered by livestock insurance. The value of the animal at birth plus the input costs the insured paid for the insured animal over the policy period determine the total amount covered.

Usually naïve, agribusiness owners are unaware of the advantages of insurance in mitigating agricultural risks. Furthermore, farmers' engagement in the system is hindered by their cultural and religious views (Epetimehin, 2012). In order to facilitate the evaluation of the losses reported by farmers and ensure prompt claims payment, infrastructure like feeder roads and adequate communication links are crucial.

Agriculture insurance program administration typically has high capital costs and significant financial requirements. This can be attributed to the hiring of highly qualified personnel in the insurance and agricultural sectors, the purchase of infrastructure, farm monitoring, and inspection/loss surveys (Zhichkin et al 2023). The Federal and State Governments' premium subsidies are being delivered with significant delays. The Corporation's efforts to expand its underwriting operations and discourage agribusiness have been severely hindered by the premium subsidy arrears.

Understanding agribusiness information expectations and being able to read and comprehend insurance contracts are key components of improving their wording and disclosures.

The lack of widely accepted standards for the fundamental aspects of insurance that a literate consumer should be aware of and comprehend, as well as standardised and validated testing tools to gauge consumers' comprehension of these components, present a challenge to research on insurance literacy. Nonetheless, more methodical development has been used to guarantee that assessment tools offer a precise appraisal of customers' insurance literacy (Weedige et al, 2019). There has been a focus on evaluating customers' ability to traverse actual policy documents in order to make insurance decisions because it is difficult to produce reliable assessments of consumer literacy (Gutierrez, 2019). This shifts the primary emphasis of measuring consumer literacy from knowledge to application. It also means that literacy tests are tailored to the type of insurance rather than being general for all insurance in the context of insurance. An agribusiness owner can know a lot about one type of insurance but not another. A more thorough understanding of the causal effects of insurance education and information sources could offer valuable perspectives on initiatives to improve insurance literacy. Individual differences in insurance knowledge and confidence in making insurance decisions are substantial (Garba, 2024)

One of the main goals of consumer protection regulation in insurance is to improve the understandability of insurance contracts, starting with statements of policy terms and benefits. Mandatory disclosure of relevant information is consistent with this goal, according. However, depending solely on disclosures could be problematic if clients struggle to understand or interpret them. Tennyson (2011) pointed that while certain agribusiness purchasing decisions might be constrained by inadequate knowledge and comprehension of their insurance plans, more helpful disclosures or more straightforward contract structures might nevertheless contribute to better results.

One of the most important components of agricultural distinctiveness is climate risk. Climate factors that are important for crop production include air and soil temperature, humidity, cloudy and sunny weather, day length, amount and distribution of rainfall, number of rainy days, wind direction and strength, winter duration, vegetation, and frost-free period (De Janvry, Dequiedt, and Sadoulet, 2014). Therefore, abrupt changes, or so-called excesses of the weather, including hail, droughts, floods, high temperatures, strong winds, and frosts during the growing season, have also been linked to periodic weather variations that are essential for the growth and development of plants.

According to Kwadzo, Kuwornu, and Amadu (2013), agricultural insurance has been identified as a crucial tactic for helping farmers, herders, and governments lessen the financial burden of severe natural disasters. They added that agricultural insurance also serves as a policy in the form of securities for banks, providing them with compensation for monetary losses incurred by farmers and other participants in the agricultural value chain due to product damage. They also provide funding for loan servicing. In order to mitigate the

risks connected with climate change, agricultural insurance was implemented. The Federal Government of Nigeria made this available to farmers in 1987 by creating and overseeing the Nigerian Agricultural Insurance program. Therefore, agriculture insurance is intended to provide coverage for monetary losses brought on by the unpredictable nature of diversified output.

Since most agricultural production takes place outside and involves managing living things, plants, and animals, it is more complicated and susceptible to weather, pests, and diseases. Climate conditions are known to seriously impair agricultural output, destroying all agricultural entrepreneurship endeavours. Climate change is one area where the detrimental effects of the climate are most evident (Njegomir and Pejanovic, 2016). Numerous soil processes and characteristics that are intended to promote soil fertility and productivity are seriously impacted by the harm done to agricultural output. All of these soil-related activities will affect soil development processes and attributes directly and indirectly, which will result in losses for an agribusiness owner. In addition to damaging the soil, a major cause of agricultural loss for an entrepreneur is the infestation of pests and diseases that affect large animals, which causes enormous costs for the business owner. Agripreneur's ability to make decisions and understand insurance prevents them from acting on their losses. Despite advancements, in regions like Nigeria, agricultural insurance uptake remains low, influenced by cultural perceptions, limited awareness, and infrastructural barriers. This study aims to bridge this gap by assessing the agricultural insurance literacy levels among agripreneurs in Obio-Akpor Local Government Area, Rivers State, Nigeria. Little research has been done on insurance literacy. Therefore, this study examined the assessment of agricultural insurance literacy level among agripreneurs in Obio-Akpor Local Government Area Rivers State, Nigeria to close the knowledge gap among agripreneurs in Obio-Akpor Local Government Area Rivers State, Nigeria and among other States with similar characteristics. These objectives aim to bridge knowledge gaps and align interventions with observed challenges. The specific objectives are;

- i. describe the socio-economic characteristics of agripreneurs in the study area.
- ii. assess the level of agricultural insurance literacy among agripreneurs in the study area.
- iii. analyze the factors that influence the level of agricultural insurance literacy among agripreneurs in the study area.
- iv. examine the perception of agripreneurs on agricultural insurance scheme in the study area.

## 2.0 Methodology

The study was carried out in Rivers State, Nigeria's Obio-Akpor Local Government Area (LGA). With a total area of 100m<sup>2</sup> (260 km<sup>2</sup>), it is situated between latitudes 4°45'N and 4°60'N and longitudes 6°50'E and 8°00'E. The National Population of Nigeria (NPC 2006) claims that. The residents of the LGA engage in a variety of agricultural activities, such as farming, agro-product processing, and agro-product purchasing and sales.

The agribusiness owners were chosen using a two-stage sampling process. Four of the seventeen communities that comprise the LGA were randomly selected for the first stage. In the second stage, twenty (20) agripreneurs from each community are purposefully chosen, for a total of eighty (80) agripreneurs in the study.

With the use of questionnaires, primary sources provided the data for this research. Journals, articles, and textbooks are examples of secondary data sources that offer the theoretical framework required for the investigation. Descriptive statistics were used to analyse objectives (i), (ii), and (iv), whereas binary logistic regression was used to analyse objective (iii). This study used a binary logit model to identify the variables affecting the insurance literacy of agripreneurs in the area of study.

### Model specification

Let  $P_j$  denote the probability that the  $j$ -th agripreneur has a high insurance literacy score. We assume that  $P_j$  is a Bernoulli variable and its distribution depends on the vector of predictors  $X$ , so that;

$$P_j(X) = e^{\alpha + \beta X} \quad (1)$$

The logit function to be estimated is then written as;

$$\ln\{P_j/(1 - P_j)\} = \alpha + \sum \beta_i X_{ij} \quad (2)$$

The logit variable  $\ln\{P_j/(1 - P_j)\}$  is the natural log of the odds in favour of an agripreneur having a high insurance literacy score. The coefficient estimates of  $\beta$  give the change in the log-odds (logarithm of relative probabilities) of the outcome, here = 1, for a one unit increase in the independent variable, holding all other independent variables constant. Logit regressions are estimated using Maximum Likelihood (ML) rather than OLS. ML calculates coefficient estimates that maximize the likelihood of the sample data set being observed.

The binary logit model to be estimated is specified as follows:

$$C_{ij} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu \quad (3)$$

$C_{ij}$  = Dummy = 1 if an agripreneur has a high insurance literacy score, and 0 otherwise.

$X_1$  = Age (years)

$X_2$  = Household size (number)

$X_3$  = Educational status (years)

$X_4$  = Marital status (married= 1, single = 0)

$X_5$  = Gender (dummy; male =1, female=0)

$X_6$  = Business experience (years)

$X_7$  = Annual income (Naira)

$X_8$  = Membership of farmers association (dummy; Yes=1, No=0)

$u$  = stochastic error term.

### 3.0 Results and Discussion

Socio-economic characteristics of agricultural insurance literacy level among agripreneur in the study area is presented in Table 1.

**Table 1: Socio-economic characteristics of agricultural insurance literacy level among agripreneur in the study area**

| Variables                          | Frequency | Percentage |
|------------------------------------|-----------|------------|
| <b>Gender</b>                      |           |            |
| Male                               | 22        | 27.5       |
| Female                             | 58        | 72.5       |
| <b>Age</b>                         |           |            |
| 31-40                              | 46        | 57.5       |
| 41-50                              | 32        | 40.0       |
| 51-60                              | 2         | 2.5        |
| <b>Marital status</b>              |           |            |
| Single                             | 8         | 10         |
| Married                            | 72        | 90         |
| <b>Level of educational status</b> |           |            |
| Primary                            | 4         | 6.0        |
| Secondary                          | 57        | 71.25      |
| Higher institution                 | 19        | 22.75      |
| <b>Average monthly income</b>      |           |            |
| 10,000-100,000                     | 47        | 58.8       |
| 100,001-400,000                    | 26        | 32.5       |
| 400,001-700,000                    | 4         | 5.0        |
| 700,001-1,000,000                  | 3         | 3.8        |
| <b>Farming status</b>              |           |            |
| Farming alone                      | 18        | 22.5       |
| Farming and other activities       | 62        | 77.5       |
| <b>Household size</b>              |           |            |
| 1-3                                | 1         | 1.3        |
| 4-6                                | 58        | 72.5       |

|                            |    |       |
|----------------------------|----|-------|
| 7-9                        | 19 | 23.8  |
| 10-12                      | 2  | 2.5   |
| <b>Business experience</b> |    |       |
| 1-5                        | 11 | 13.8  |
| 6-10                       | 47 | 58.8  |
| 11-15                      | 19 | 23.8  |
| 15-20                      | 2  | 2.5   |
| 21-25                      | 1  | 1.3   |
| <b>Farmers association</b> |    |       |
| Members                    | 10 | 12.5  |
| Non-members                | 70 | 87.5  |
| Total                      | 80 | 100.0 |

Source: Field survey (2023)

The socioeconomic characteristics of agripreneurs in the research region are displayed in Table 1. The findings indicate that women made up the majority of agribusiness owners in the study area who participated in the insurance literacy level survey (72.5%), as opposed to men (27.5%). This suggests that the majority of agripreneurs in the study area were women. About 40 percent of agripreneurs are between the ages of 41 and 50, and 57.5% are between the ages of 31 and 40. This suggests that there was a large and active population of agripreneurs.

Ninety percent were married. This suggests that married people are interested in becoming agripreneurs in order to provide for their families. Furthermore, the majority of agripreneurs (71.25%) completed secondary school, 22.25% have advanced degrees, and 6.0% dropped out of elementary school. This suggests that the agripreneurs in the area of study are sufficiently educated to read and comprehend the benefits and drawbacks of insurance, as well as to be aware of insurance in general, which may be connected to agricultural insurance.

Additionally, Table 1 reveals that 32.5% of the agripreneurs made between ₦100,001 and ₦400,000 per month, while 58.8% made between ₦10,000 and ₦100,000 per month. This suggests that, to some extent, the agripreneurs are succeeding in their ventures. 77.5 percent of people combine farming with other activities. The majority of agripreneurs' households (72.5%) had four to six people, while 23.8% had seven to nine people. About 58.8% of them have six to ten years of experience. The majority of them (87.5%) did not belong to any farming associations, which could hinder group action efforts including insurance program opportunities, capital mobilisation, training, and information sharing

**Table 2: Level of Agricultural Insurance Literacy Among Agripreneurs in The Study**

| Variables<br>Statements   | Yes |      | No |      |
|---|-----|------|----|------|
|   | F   | %    | F  | %    |
| Have heard the term insurance?  | 70  | 87.5 | 10 | 12.5 |
| Have heard the term agricultural insurance?                                       | 40  | 50.0 | 40 | 50.0 |
| Do you know of any Government scheme on agricultural insurance?                   | 20  | 25.0 | 60 | 75.0 |
| Do you know where to go, to insure your farming business                          | 32  | 40.0 | 48 | 60.0 |
| Types of agricultural insurance coverage products available in your locality.     | 30  | 37.5 | 50 | 62.5 |
| Benefits of agricultural insurance in farming business                            | 52  | 65.0 | 28 | 35.0 |
| Do you understand the term “premium”  | 22  | 27.5 | 58 | 72.5 |
| Do you understand by the term “indemnity”   | 14  | 17.5 | 66 | 82.5 |
| How to estimate your insurance cover  | 28  | 35.0 | 52 | 65.0 |
| Do you know what to do if your insurance scheme refuses to pay claims for damages | 68  | 85.0 | 12 | 15.0 |

Note: F = Frequency; % = Percentage

Source: Field survey (2023)

The results for the degree of agricultural insurance literacy are displayed in Table 2. Most people (87.5%) are aware of insurance. This result is consistent with that of Aroyehun (2023), who found that 60.8% of chicken egg farmers in Rivers State, Nigeria, were aware of insurance. About 25% of the agripreneurs in the research area were aware of government programs related to agricultural insurance, and 50% of them had heard of agricultural insurance. About 40% of the study's agripreneurs knew where to find insurance for their operation, and 65% of them were aware of the advantages of agricultural insurance. Additionally, around 37.5% of the study area's agripreneurs are aware of the many kinds of agricultural insurance coverage that are offered nearby. About 27.5% of agripreneurs have understanding about premiums, 17.5% understand indemnification, and 35% are able to calculate insurance coverage. This might be because, as Table 1 shows, the study area has a high literacy rate. The majority of agribusiness owners (85%) are aware of what to do in the event that an insurance plan declines to cover claims for insured damages. These results align with findings from Aroyehun (2023), where similar awareness levels were observed among poultry farmers, indicating regional trends in insurance literacy.

**Table 3: Binary Logit Of Determinants Of Insurance Literacy Levels Among Agripreneurs In The Study Area**

| Variables           | Coeff.   | Std Error | Wald Stat | P-values |
|---------------------|----------|-----------|-----------|----------|
| Gender              | -1.96*** | 0.708     | 7.622     | 0.006    |
| Age                 | 0.012    | 0.091     | 0.018     | 0.893    |
| Marital status      | -1.658   | 1.931     | 0.738     | 0.390    |
| Household size      | -0.299   | 0.394     | 0.578     | 0.447    |
| Educational status  | -0.564   | 0.708     | 0.636     | 0.425    |
| Business experience | 0.088    | 0.111     | 0.623     | 0.430    |
| Income              | 0.000    | 0.000     | 1.512     | 0.219    |
| Farming association | 2.99***  | 0.995     | 9.016     | 0.003    |
| Constant            | 1.786    | 4.488     | 0.158     | 0.691    |

**Note:** \*\*\*, \*\* and \* means significant at 1%, 5% and 10% level; Omnibus Test Chi Square = 29.507, Prob>chi square = 0.000; Nagelkerke R-square = 0.430; Observation = 80  
 Source: Field survey (2023)

The binary logit regression model result of determinants of insurance literacy levels among agripreneurs in the study area is presented in Table 3. The dependent variable (insurance literacy score) was defined as follows: high insurance literacy score = 1; low insurance literacy score = 0. The model is statistically significant at 1%, indicating that the explanatory variables estimated reliably distinguished agripreneurs who have high insurance literacy score and those who have low insurance literacy (Chi-square = 29.507, P = 0.000). The Nagelkerke R-square value of 0.430 indicates that the combined effects of all the independent variables in the model explained 43.0 percent of the variation in insurance literacy score.

Gender is statistically significant at 1% with negative coefficient (-1.96). This implies that female agripreneurs are more likely to be more literate on insurance matters than male. This may be possible because women like to avoid risk thus protecting their businesses and homes thereby employing strategies to reduce risks. Membership of farmers' association is statistically significant at 1%, with positive coefficient of 2.99. This means that agripreneurs who belong to farmers' associations are more likely to be literate in insurance. This could be that the association helps to share useful information to their members. This finding agree with Aroyehun (2023) who obtained a positive significant among poultry egg farmers' participation in livestock insurance in Rivers State, Nigeria. The findings on gender and farmers' association membership underscore the role of community networks and socio-economic factors in influencing insurance literacy, suggesting targeted policy interventions. Women's higher likelihood of insurance literacy, possibly driven by risk-averse behaviors, and the positive role of farmers' associations in disseminating information, highlight avenues for gender-sensitive and community-based interventions.

The coefficient of income and business experience, though not significant but positive, implies that those who are high income earners and have been long in the business are more likely to be insurance literate.

**Table 4: Perceptions of Agripreneurs on Agricultural Insurance Scheme In The Study Area**

| Variables<br>Perception   | Yes |      | No |      |
|---|-----|------|----|------|
|   | F   | %    | F  | %    |
| Agricultural insurance is important to farmers since it helps to buffer the consequences of risks | 74  | 92.5 | 6  | 7.5  |
| Agricultural insurance decreases farmers' fears and stress  | 32  | 40.0 | 48 | 60.0 |
| Agricultural insurance should be mandatory  | 32  | 40.0 | 48 | 60.0 |
| It is not necessary to get agricultural insurance to mitigate the effects of losses or damages.   | 68  | 85.0 | 12 | 15.0 |
| The government is liable for compensating farmers for their losses.                               | 54  | 67.5 | 26 | 32.5 |
| I have fears that claims may not be paid  | 44  | 55.0 | 36 | 45.0 |
| I don't think insurance is as important as other necessities.                                     | 52  | 65.0 | 28 | 35.0 |
| I believe that any compensation will not be sufficient to offset losses.                          | 52  | 65.0 | 28 | 35.0 |
| I have the fear that compensation will be delayed for a longtime                                  | 68  | 85.0 | 12 | 15.0 |
| The premium rate is very high   | 58  | 72.5 | 22 | 27.5 |
| There is usually long bureaucracy in obtaining an insurance cover                                 | 44  | 55.0 | 36 | 45.0 |

**Note:** F = Frequency; % = Percentage

Source: Field survey (2023)

The opinions of agripreneurs about agricultural insurance programs are displayed in Table 4. The majority of agribusiness owners concurred with the following statements: agricultural insurance helps farmers mitigate the effects of risks (92.5%); it lessens farmers' stress and worries (40%); it should be required (40%); it is not necessary to mitigate the effects of losses or damages (85%); recovering farmers' losses is government liability (67.5%); agripreneurs fear that claims may not be paid (55%); they do not prioritise insurance over other needs (65%); they believe that compensation will not cover losses (65%); they fear that compensation will be delayed for a long period of time (85%); premiums are extremely high (72.5%); and there is typically lengthy bureaucracy involved in obtaining insurance coverage (55%). The analysis's findings indicate that agripreneurs see agriculture insurance favourably. 48% disagree that agriculture insurance should be required since it eases farmers' stress and anxieties. Eighty-five percent said they are afraid the reimbursement will be long overdue. Agripreneurs must therefore increase their insurance coverage in order to protect themselves against unforeseen risks and losses.

#### 4.0 Conclusion and Recommendations

The study evaluated the assessment of agricultural insurance literacy level among agripreneurs in Obio-Akpor Local Government Area Rivers State, Nigeria. The results of this study reveal that females in the study area are vast in terms of agriculture insurance literacy level compared to the males. The conclusion of the study showed that young adults were more involved agripreneurs and majority were married. Most of the agripreneurs in the study area were aware of agricultural insurance. The following recommendations were made:

- i. Agripreneur should attempt to insured their firm against losses, while agricultural insurance should endeavour to pay for losses on time by minimising the long bureaucracy in acquiring an insurance cover.
- ii. Agripreneurs should be informed on the benefits associated with agricultural insurance and more awareness should be raised among agripreneurs.





- iii. Agripreneurs should join the farmers' association because the majority of them did not belong to any. This could be a barrier for them because they would not be able to get the benefits of membership.

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