# ENHANCING FARMERS' INSURANCE LITERACY: KEY TO IMPROVING AUTP ACCESSIBILITY IN ACEH PROVINCE

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**Abstract**

**Background:** Insurance literacy is crucial in improving farmers' access to insurance. Lack of understanding of insurance products and inability to process information hinder farmers from making the right decisions, resulting in low insurance utilization.

**Purpose:** This research aims to (1) analyze farmers' insurance literacy levels and influencing factors and (2) analyze the effect of farmer insurance literacy and other variables on the accessibility of AUTP.

**Design/methodology/approach:** Data from 251 respondents, including those who accessed and did not access AUTP in Aceh Province. To elucidate the research objectives, an analysis of the level of insurance literacy was conducted using multiple regression analysis and an analysis of accessibility to AUTP using binary logistic regression.

**Findings/Result:** The results show that the level of farmer insurance literacy is in the less literate category. The variables of age, education duration, and bank account ownership significantly affect farmer insurance literacy. The variables that affect AUTP accessibility are age, education duration, farm revenue, land ownership, farmer insurance literacy value, farmer group activity, perception of farm risk, insurance claim experience, and AUTP premiums. These results can describe the condition of farmer insurance literacy and AUTP access in other regions of Indonesia with similar farmer characteristics.

**Conclusion:** Farmers' insurance literacy has a significant impact on AUTP access. Therefore, the government and stakeholders need to conduct regular socialization and training to increase farmers' knowledge and awareness of insurance so that more farmers can take advantage of the AUTP program.

**Originality/value (State of the art):** This study focuses on farmer insurance literacy. This study links farmer insurance literacy with AUTP access.

**Keywords:** accessibility, Aceh, AUTP, insurance literacy, farmers

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# INTRODUCTION

The agricultural sector plays a crucial role in the economy of Aceh Province, contributing over 29% to the Gross Regional Domestic Product (GRDP) between 2015 and 2022. This sector comprises several subsectors: food crops, horticulture, plantations, and livestock. Among these, rice farming is a dominant component, making Aceh the eighth-largest rice-producing region in Indonesia. In 2022, the province recorded a harvested area of 271,750.16 hectares, yielding approximately 869,572.00 tons of rice, with an average productivity of 55 quintals per hectare higher than the national average of 51.28 quintals per hectare (BPS Indonesia, 2024).

However, rice farming in Aceh is highly vulnerable to various risks, including pest infestations, floods, and droughts, which have been exacerbated by climate change. Between 2015 and 2020, an average of 20,901.18 hectares of rice fields were affected by floods annually, with 3,829.69 hectares experiencing total crop failure. Similarly, 10,875.12 hectares were impacted by drought, causing 1,509.73 hectares of complete losses (Kementerian Pertanian, 2020; 2023). These threats significantly affect farmers' income and agricultural sustainability.

To mitigate these risks, the government introduced the Asuransi Usaha Tani Padi (AUTP) in 2015, protecting farmers from financial losses due to crop failures (Sulaiman et al. 2018). However, despite its potential benefits, the adoption rate of AUTP among farmers remains relatively low. One key factor influencing participation in agricultural insurance programs is insurance literacy the ability of farmers to understand, evaluate, and utilize insurance schemes effectively. This study aims to determine how farmers' insurance knowledge affects their ability to access AUTP. This will help us understand the challenges and chances of increasing Aceh's insurance use.

Given the high risks associated with rice farming, participation in the AUTP program is expected to be high. However, data from the Directorate General of Infrastructure and Facilities of the Ministry of Agriculture indicate that although Aceh Province was allocated 34,000 hectares for AUTP in 2015, increasing to 39,000 hectares in 2016, actual program realization remained low, reaching only 17% in 2018. This data suggests that accessibility to AUTP among farmers in Aceh is still limited.

One of the key barriers to AUTP adoption is farmers' low insurance literacy. A survey by (Otoritas Jasa Keuangan, 2019) indicated that insurance literacy significantly lags behind banking literacy in Indonesia. Weedige et al. (2019) found that insurance literacy directly influences behavioural intentions to purchase insurance in the agricultural sector. Ankrah et al. (2021) reported that limited knowledge about agricultural insurance products reduces access to and acceptance of such programs. Insurance literacy encompasses knowledge, understanding, and awareness of insurance concepts, benefits, and mechanisms. It is a crucial determinant of access to agricultural insurance, as poor comprehension and inability to process information often hinder effective decision-making.

Despite the importance of insurance literacy, research in this field remains scarce, especially in rice farming. Previous studies have focused on financial literacy among farmers (Ainurrahma, 2019; Widhiyanto et al. 2018; Yarasevika, 2016) but have not explicitly examined insurance literacy and its impact on agricultural insurance adoption. Several studies by Lin et al. (2019) and Weedige et al. (2019) have identified three key components of insurance literacy: (1) understanding insurance concepts and products, (2) recognizing the risks covered by insurance policies, and (3) applying knowledge to evaluate insurance options and make informed decisions. Additionally, Weedige et al. (2019) emphasized that insurance literacy is not only about knowledge but also involves skills, attitudes, and behaviours necessary for making informed insurance decisions.

The existing literature has primarily examined the role of insurance literacy in individual decision-making (Lin et al. 2019; Uddin, 2017) and its impact on insurance ownership (Holst et al. 2023; Kakar et al. 2022). However, there is a lack of research on the relationship between insurance literacy and access to agricultural insurance among rice farmers in Aceh. This study aims to fill this gap by examining how insurance literacy influences farmers' participation in AUTP. This study adds to our knowledge of how easy it is for people to get agricultural insurance by looking into the main factors that affect insurance literacy and its role in getting people to buy insurance. It also suggests how farmers can become more knowledgeable about insurance and get more involved in AUTP.

Given the importance of insurance literacy in increasing access to AUTP, this study uses a quantitative approach with a survey method on farmers in Aceh, both those who have accessed and those who have not accessed AUTP. Data were collected through a questionnaire referring to the Bristow-Tennyson Quiz (Insurance Authority, 2022; Lin et al. 2019), which is designed to measure insurance literacy based on three main dimensions: knowledge, attitude, and behaviour. Each correct answer is given a score of 1, and the total score will be used as an indicator of farmers' insurance literacy level, which is further categorized into well-literate, sufficient-literate, less-literate, and not-literate.

This study uses multiple linear regression analysis with the Ordinary Least Squares (OLS) method to examine the factors affecting farmers' insurance literacy. This is because the OLS method is good at finding the link between independent variables and literacy scores as continuous variables. Furthermore, logistic regression analysis is used to evaluate how insurance literacy and socio-demographic factors affect the probability of farmers accessing AUTP, as it is suitable for binary dependent variables (access or not access to AUTP). This approach provides empirical insights into the key factors influencing farmer participation in AUTP and offers policy recommendations to improve insurance literacy and accessibility among farmers in Aceh.

Based on the background and gaps in the literature, this study aims to (1) Measure the level of farmer insurance literacy in Aceh and identify the key socio-demographic variables that influence insurance literacy. (2) Evaluate the impact of farmer insurance literacy and other related factors, such as age, education, farming income, and non-farming income, on the accessibility of rice farming insurance (AUTP). This study contributes to the existing body of knowledge by providing empirical evidence on the role of insurance literacy in shaping agricultural insurance adoption. Unlike previous studies, which primarily focus on financial literacy, this research explicitly examines insurance literacy among rice farmers and its direct influence on AUTP accessibility. The findings are expected to inform policymakers in designing targeted interventions to enhance insurance literacy and increase farmers' participation in AUTP.

## METHODS

This study employs a cross-sectional data approach, collecting primary data from rice farmers in Aceh Province. A structured questionnaire and direct interviews were used to gather information from respondents. The cross-sectional approach was chosen because it allows for an assessment of farmers' insurance literacy and AUTP accessibility at a specific point in time, which is crucial for policy recommendations.

The sampling method employed was multistage purposive sampling, ensuring the selection of representative respondents based on predetermined criteria relevant to the study objectives. First stage: District selection Aceh Besar and South Aceh districts were selected because they had the highest number of AUTP participants since the program's inception (Directorate General of Infrastructure and Facilities, Ministry of Agriculture). Second stage: Sub-district selection Four sub-districts from each district were chosen based on their involvement in the AUTP program. Third stage: Village selection One village was selected from each sub-district where farmer group members actively participated in AUTP. Final stage: Respondent selection Random sampling was conducted within each farmer group to select respondents for the survey. A total of 260 questionnaires were distributed to ensure adequate representation.

The first objective of this study can be achieved by using multiple regression analysis. Multiple regression analysis can analyze the simultaneous influence of several independent variables on the dependent variable. Multiple regression estimates the parameter using the ordinary least square (OLS) method. OLS estimators will produce the best linear unbiased estimator if the regression classic assumptions are met. Before the analysis, this study measured the insurance literacy of respondent farmers using a questionnaire, which refers to the Bristow-Tennyson Quiz (Insurance Authority, 2022; Lin et al. 2019). The questionnaire questions cover three insurance literacy dimensions: knowledge, attitudes, and behaviour. Each respondent's answer is given a score. The insurance literacy value of farmers is calculated by dividing the number of correct answers by the total number of questions in the questionnaire multiplied by 100%. The insurance literacy value of farmers is divided into four categories(Otoritas Jasa Keuangan, 2015), namely: well literate (76-100), sufficient literate (51-75), less literate (26-50), and not literate (0-25). The

equation model used to analyze the variables that affect the insurance literacy value of farmers is:

$$NLAP = a_0 + a_1 JKEL + a_2 USIA + a_3 LWPF + a_4 PKUT + a_5 PREK + a_6 JPEN + a_7 JLKB + U_1 \dots (1)$$

Description: $a_0$ (Intercept (constant)); $a_1$–$a_7$ (regression coefficient of each variable); NLAP (farmer insurance literacy value (values range from 0 to 100)); JKEL (gender (male = 1, others = 0)); USIA (farmer age (years)), LWPF (length of formal education (years)); PKUT (main occupation (farmer = 1, others = 0)); PREK (bank account ownership (has an account = 1, others = 0)); JPEN (total annual income (million rupiah)); JLKB (distance from farm location to financial institution (km)); $U_1$ (error term).

Factors that affect farmer insurance literacy are described in the following hypothesis:

H0: There is no significant effect between each independent variable (Socio-demographic factors: gender, age, education, main job, bank account, distance to bank, annual income) on the dependent variable (Insurance literacy score)

H1: There is a significant effect between each independent variable (Socio-demographic factors: gender, age, education, main job, bank account, distance to bank, annual income) on the dependent variable (Insurance literacy score)

Furthermore, the second research objective can be achieved using logistic regression analysis. Binary logistic regression analysis determines farmers' decisions when accessing AUTP. Farmers who access AUTP are given a score of (1), and those who do not access AUTP are given a score of (0). Logistic regression analysis is used to see the relationship between independent and dependent variables. The variables used in the regression model refer to economic theories and related studies (Brånstrand, 2014; Fahad et al. 2018; Rola & Aragon, 2013). The equation model that will be used to analyze the variables that influence AUTP accessibility is:

$$\ln(pi/(1-pi) = AAUP = b_0 + b_1 USIA + b_2 LWPF + b_3 PNUT + b_4 PLUT + b_5 LLHN + b_6 KLHN + b_7 NLAP + b_8 POKA + b_9 PRUT + b_{10} PKAL + b_{11} PAUT + U_2 \dots (2)$$

Description: $b_0$ (Intercept (constant)); $b_1$–$b_{11}$ (regression coefficient of each variable); AAUP (AUTP accessibility (accessing AUTP = 1, others = 0)); PNUT (farm business income (millions of rupiah)); PLUT (non-farm income (millions of rupiah)); LLHN (farmland area (ha)); KLHN (land ownership status (own = 1, others = 0)); PAAL (ownership of other insurance policies (own = 1, others = 0)); POKA (group activity (active = 1, others = 0)); PKAL (experience in filing AUTP claims (ever = 1, others = 0)); PRUT (farm business risk perception (high risk = 1, others = 0)); PAUP (rice farming insurance premium (affordable = 1, others = 0)); $U_2$ (error term).

Factors that affect farmer access to AUTP are described in the following hypothesis:

H0: There is no significant effect between each independent variable (Socio-demographic factors: age, education, farm income, non-farm income, land area, land ownership, farmer group, Other factors: risk perception, claim experience, insurance premium) on the dependent variable (AUTP Access)

H1: There is a significant effect between each independent variable (Socio-demographic factors: age, education, farm income, non-farm income, land area, land ownership, farmer group, Other factors: risk perception, claim experience, insurance premium) on the dependent variable (AAUP)

Figure 1 illustrates the research framework and hypothesis development. Rice farmers encounter risks when managing their farming operations. One of the risk mitigation efforts is to buy insurance. Insurance literacy is one of the factors that influences whether or not farmers access insurance. Previous studies have shown that the value of individual financial literacy (insurance) will affect accessibility to insurance financing. The calculation of farmer literacy values is based on questionnaires filled out by farmer respondents. The value of farmer insurance literacy is obtained by dividing the correct answers by the total number of questions. The value of farmer insurance literacy and the variables that influence it are analyzed using multiple regression analysis using the ordinary least squares (OLS) method. The next step is to analyze the factors influencing farmer accessibility to AUTP. Existing theories and the results of literature studies show that accessibility to financing sources is influenced by socio-demographic factors such as age, education,

agricultural income, non-agricultural income, land area, land ownership, and farmer group activity. Other factors include risk perception, experience filing claims, and insurance premiums. These variables will be analyzed using logistic regression.

## RESULTS

### Characteristics of Respondents

The socio-economic characteristics of respondents described include age, gender, education level, principal occupation, land area, and farming experience. The distribution of respondents based on these characteristics is presented in Table 1. The majority of respondents are productive-age farmers and male, with an age range of 26 to 76 years. Judging from the formal education taken by respondents, as many as 27.09% of respondents only completed basic education, while only 18.33% reached college. The main occupation of respondents, as many as 56.57%, are farmers, and as many as 43.43% work as traders, labourers, fishermen, or self-employed. The majority of farmer respondents have small land, namely less than 0.5 ha. As many as 68.92% of respondents have more than 10 years of farming experience.

### Farmer Insurance Literacy Analysis

The development of the insurance industry is increasing rapidly, along with the increasing awareness of the importance of risk protection. Insurance literacy is the key to understanding the product correctly and maximizing its benefits. In this study, farmers' insurance literacy was measured by scoring questionnaire answers and then classified into four categories, as listed in Table 1.

The results of the calculation of farmer insurance literacy show that none of the respondents are in the well-literate category. Most respondents, namely 56.18%, are in the less literate category, meaning they have a minimal understanding of insurance. As many as 37.05% of respondents are classified as sufficiently literate, meaning they have sufficient knowledge to make informed decisions about policies that suit their needs. On the other hand, 6.77% of respondents are in the not literate category, namely those who do not understand or have any knowledge about insurance. Respondents in the not-literate category need special attention. Possible approaches to address their knowledge gaps include counselling in more straightforward language and visual-based (video images and animations) formats. Although this study focuses on Aceh Province, this study can reflect the state of farmer insurance literacy in other regions of Indonesia that show similar farmer characteristics, namely low levels of education. As many as 70% of Indonesian farmers only have a basic education (BPS Indonesia, 2024).

The components of farmer insurance literacy in the study include insurance knowledge, attitudes, and behaviour. The average index of farmer insurance literacy in this study was 45.56, meaning that farmer respondents were less literate. Based on each dimension, the most dominant insurance literacy index was the insurance attitude index of 55.80 (Table 2). Meanwhile, the average index of farmers' insurance knowledge is 49.50, and the average index of insurance behaviour aspects is 37.50.
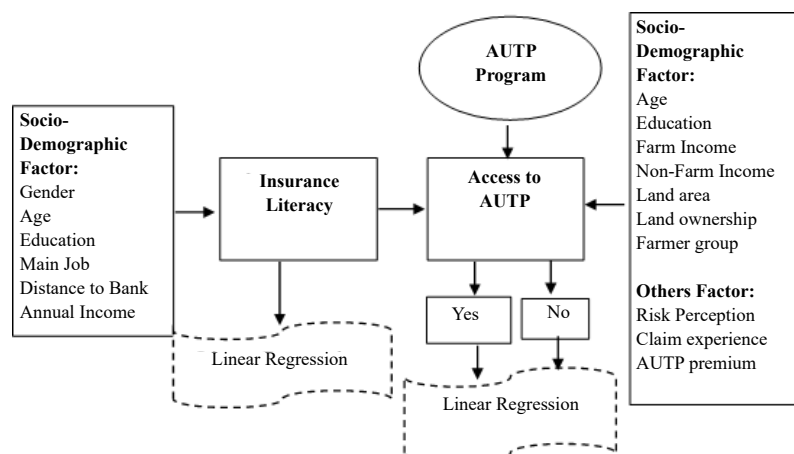


Figure 1. Research framework

Table 1. Farmers' insurance literacy level based on gender, age, education, occupation, account ownership, income, and farm location

| Characteristics of respondents | Sample amount | Not literate (Total) | Less literate (total) | Sufficient literate (Total) | Well iterate (Total) |
|---|---|---|---|---|---|
| **Gender** | | | | | |
| Male | 178 | 15 | 102 | 61 | 0 |
| Female | 73 | 2 | 39 | 32 | 0 |
| **Age (year)** | | | | | |
| ≤30 | 5 | 0 | 1 | 4 | 0 |
| >30-40 | 45 | 0 | 21 | 24 | 0 |
| >40-50 | 72 | 1 | 39 | 32 | 0 |
| >50-60 | 95 | 7 | 57 | 31 | 0 |
| >60 | 34 | 9 | 23 | 2 | 0 |
| **Education level** | | | | | |
| Elementary school | 68 | 17 | 46 | 5 | 0 |
| Junior HighSchool | 53 | 0 | 42 | 11 | 0 |
| Senior HighSchool | 84 | 0 | 50 | 34 | 0 |
| Diploma | 17 | 0 | 1 | 16 | 0 |
| Bachelor | 29 | 0 | 2 | 27 | 0 |
| **Main Job** | | | | | |
| Farmer | 142 | 15 | 75 | 51 | 0 |
| Non-farmer | 109 | 2 | 66 | 42 | 0 |
| **Bank account ownership** | | | | | |
| Have account | 163 | 1 | 79 | 83 | 0 |
| No account | 88 | 16 | 62 | 10 | 0 |
| **Income** | | | | | |
| ≤ 10 | 14 | 2 | 11 | 1 | 0 |
| >10-30 | 156 | 15 | 96 | 45 | 0 |
| >30-50 | 52 | 0 | 26 | 26 | 0 |
| >50 | 29 | 0 | 8 | 21 | 0 |
| **Location of the farm** | | | | | |
| ≤1 km | 12 | 1 | 3 | 8 | 0 |
| >1-5 km | 96 | 8 | 56 | 32 | 0 |
| >5 km | 147 | 8 | 82 | 53 | 0 |
| **Total** | 251 | 6.77% | 56.18% | 37.05% | 0.00% |

Table 2. Components of farmer insurance literacy

| Indicator | Average |
|---|---|
| Insurance knowledge | 49.50 |
| Insurance attitude | 55.80 |
| Insurance behaviour | 37.50 |

The low insurance literacy score, especially regarding insurance behaviour (37.50), shows that although some farmers have basic knowledge about insurance, this is not enough to encourage actual actions such as registering or purchasing insurance policies. Therefore, the government and insurance providers need to develop educational programs to persuade individuals to register for insurance by showcasing testimonials from farmers who have already received benefits. The government can also provide incentives to encourage early participation. The insurance industry notes the importance of government support in introducing insurance products to people, particularly in rural areas (Cheston et al. 2018).

**Factors Affecting Farmers' Insurance Literacy**

The estimation of the multiple linear regression model in determining the variables affecting farmers' insurance literacy can be seen in Table 3. Based on the Adj R-squared value of 0.58, it can be interpreted that farmers' insurance literacy is influenced by the independent variables in the regression model by 58.47%. In comparison, the remaining 41.53% is influenced by other variables not included in the regression model.

The classical assumption test was conducted to ensure that the regression model meets the requirements as a BLUE (Best Linear Unbiased Estimator) model. The tests include normality, heteroscedasticity, and multicollinearity (Table 4). Meanwhile, the autocorrelation test was not conducted because the data used were cross-sectional. The results of the normality result showed that the Kolmogorov-Smirnov p-value of 0.137 was greater than 0.05, so the residuals were normally distributed. The heteroscedasticity test used the Breusch-Pagan test; the probability value of 0.682 was greater than 0,05. This means that the model meets the homoscedasticity assumption. The multicollinearity test was conducted based on

VIF analysis; all values were below 5, so the model met the non-multicollinearity assumption. Thus, the built regression model satisfies the classical OLS assumptions and is suitable for analyzing the impact of independent variables on insurance literacy.

The dummy variable gender does not significantly affect farmers' insurance literacy (Table 3). This shows that insurance literacy does not depend on gender. This aligns with the research of (Yap & Kimiyaghalam, 2017) in Malaysia, there was no difference in the level of financial literacy between men and women. The negative coefficient indicates that male respondents are less literate than women; in accordance with research by (Kutner et al. 2006; McCormack et al. 2009; Politi et al. 2014) found the opposite result.

The age variable has a negative effect on insurance literacy, with a coefficient of -0.220 at a significance level of 1%. This means that the younger a person is, the better their insurance literacy is because the younger generation finds it easier to receive information via the Internet. After all, they are more familiar with electronic devices. This finding aligns with the(Insurance Authority, 2022), which shows that respondents over 60 have lower insurance literacy.

Table 3. Results of estimating variables that influence farmers' insurance literacy scores

| Independent Variable | Coefficient | Std. Error | t Statistics |
|---|---|---|---|
| Gender | -0.539 | 1.451 | -0.370 |
| Age | -0.220 *** | 0.081 | -2.720 |
| Education duration | 2.069 *** | 0.257 | 8.040 |
| Main job | 0.576 | 1.330 | 0.430 |
| Bank account ownership | 9.108 *** | 1.825 | 4.990 |
| Distance to bank | 0.055 | 0.097 | 0.570 |
| Annual income | 0.056 | 0.047 | 1.190 |

Number of obs = 251; F(7. 243) = 51.29; Prob > F = 0.0000
R-squared = 0.596; Adj R-squared = 0.585; Root MSE = 10.145

Note: ***$\alpha$ = 1%, **$\alpha$ = 5%, *$\alpha$ = 10%

Table 4. Classic assumption test results

| Type Test | Indicator | Value |
|---|---|---|
| Normality test(Kolmogorov-Smirnov test) | Probability value | 0.137 |
| Heteroscedasticity (Breusch-Pagan) | Prob> Chi$^2$ | 0.682 |
| Multicollinearity (VIF test) | Mean VIF | 1.450 |

The variable of length of formal education (LWPF) has a positive effect on insurance literacy with a coefficient of 2.069 at a 1% level of significance. The higher the respondent's education, the better their insurance literacy. The results of this study are consistent with the research of (McCormack et al. 2009; Ravikumar et al. 2013), that the higher the education of farmers, the higher the level of financial literacy, including insurance literacy. Furthermore, (Insurance Authority, 2022) findings show that there is a positive correlation between insurance literacy and education.

The dummy variable of the main job does not significantly affect farmers' insurance literacy. This means that the level of insurance literacy does not depend on a person's main job. This study's results align with research conducted by (Lusardi & Mitchell, 2014; Widhiyanto et al. 2018) who said that the main job does not significantly affect financial literacy.

The dummy variable of bank account ownership positively affects farmers' insurance literacy with an estimated coefficient of 9.108 at a 1% level of significance. Farmers who have bank accounts tend to have better insurance literacy scores because they have the opportunity to obtain information about banking products or services. This finding is in line with research by (Allen et al. 2016; Widhiyanto et al. 2018), which states that bank accounts are the gateway to accessing various financial services, including insurance products.

The variable distance from the location of the farm to financial institutions does not have a significant effect on farmers' insurance literacy. This is in accordance with the study by (Allen et al. 2016), which states the same thing: financial literacy, including insurance literacy, can remain high even though someone lives far from a financial institution. Factors such as formal education and access to information through technology, such as mobile phones and the Internet, are more important than geographical distance in influencing insurance literacy.

The annual income variable does not have a significant effect on farmers' insurance literacy. A positive coefficient indicates that a higher annual income tends to have better insurance literacy. This is in line with the results of research by (Insurance Authority, 2022; McCormack et al. 2009). Those with low incomes also have lower health insurance literacy (McCormack et

al. 2009). Furthermore, the (Insurance Authority, 2022) showed that there is a positive correlation between insurance literacy and income.

Strategies for enhancing insurance literacy can be implemented based on age segmentation and education level. Older age is often associated with more experience but also with resistance to new concepts such as insurance. Younger individuals tend to embrace change and innovation more readily. Insurance education to improve insurance literacy for older and younger groups can be done with different approaches. For older farmer groups, educational materials need to be delivered in a simple way using stories about the benefits of insurance that they will receive. Meanwhile, for younger farmer groups, a more creative, technology-based approach can be very efficient because young people actively use social media and digital technology.

Higher levels of education provide the ability to understand more complex information, including the concept and benefits of insurance. However, most farmers in Indonesia have a low level of education. Insurance literacy materials need to be adjusted to the level of education of the majority of farmers. Visual media can explain the concept of insurance in a way that is easier to understand.

### Factors Influencing the AUTP Accessibility

Regression analysis of variables affecting AUTP accessibility was carried out using a logistic model. The results of the logistic estimation can be seen in Table 5. Based on the likelihood ratio (LR) value of 156.84, degree of freedom 11, pseudo-$R^2$ 0,4540%, and p-value 0.000, far below the significance level ($\alpha = 5\%$), it can be said that the overall logistic regression model can be said to be a good model and can explain rice farmers' decisions in accessing AUTP. Analysis with the logit model no longer requires normality tests and classical assumption tests on the independent variables.

The age variable has a significant effect on AUTP accessibility, with a P-value below 10%. The Z value is positive, and the odds ratio (OR) value is 1.045, meaning that a one-year increase in age will increase the chances of farmers accessing AUTP by 1,045 times. Older farmers tend to be more aware of the risks and benefits of insurance. The results of this study are consistent with(Abu Bakar et al. 2012; and van Huyssteen and Rudansky-Kloppers, 2023), who stated

that age significantly influences purchasing decisions related to insurance.

The variable of education duration has a significant effect on AUTP accessibility. The Z value is negative, and the OR value of the variable of length of formal education is 0,7486, meaning that an increase in formal education by one year will reduce the likelihood of farmers accessing the AUTP program. A person with a high education tends to have analytical skills and be more critical of insurance products or have the ability to manage risks and have other alternatives. In contrast, research by Bista & Upadhyay (2023 and van Huyssteen & Rudansky-Kloppers (2023) stated that the level of education contributes to influencing the decision to purchase insurance. The higher the farmers' education level, the more likely they will participate in rice farming insurance (Silaban et al. 2022).

The variable of farm income has a significant effect on AUTP accessibility. The Z value is negative, and the OR value of the variable of farm income is 0.918, meaning that an increase in farm income by one unit will reduce the likelihood of farmers accessing AUTP by 0.918 times. This study's results align (Clarke & Dercon, 2015), who stated that more affluent households or higher incomes have better access to insurance alternatives through substantial savings or credit facilities. Furthermore, (Sujarwo & Rukmi, 2018) stated that the factors affecting the acceptance of agricultural insurance are experience in rice farming and income from rice farming. However, this differs from the study by (van Huyssteen & Rudansky-Kloppers, 2023) who stated that income levels contribute to influencing the decision to purchase insurance.

Land ownership variables have a significant effect on AUTP accessibility. Land ownership status can be grouped into self-owned and rented. The Z value is negative, and the OR value of the land ownership variable is 0.2763, meaning that farmers who own their land are 0.2763 times less likely to access AUTP. Tenant farmers will avoid risks and access AUTP to get certainty when facing unwanted risks. This finding is consistent with (Wulandari et al. 2022), who stated that the decrease in the chances of farmers deciding to become AUTP participants is significantly influenced by land ownership status. However, it differs from the previous study by (Suindah et al. 2020) that land ownership in the program's implementation has no

significant effect on farmers' decisions to participate in the AUTP.

Farmers' insurance literacy variables have a significant effect on AUTP accessibility. The Z value is positive, and the OR value of the insurance literacy variable is 1,038, meaning that an increase in the insurance literacy value of farmers by one unit will increase the likelihood of farmers accessing AUTP by 1.038 times. Insurance education is one effort to improve farmers' insurance literacy. Individuals with a better understanding of insurance are more likely to access insurance products. This finding is consistent with (Afriyie-Kraft et al. 2020), who said that misperceptions about agricultural insurance contribute to low insurance use. Access to agricultural insurance is limited by limited knowledge about agricultural insurance products (Ankrah et al. 2021).

The variable of farmer group activity from the study has a significant effect on AUTP accessibility. The Z value is positive, and the OR value of the farmer group activity variable is 7.099, meaning that farmers who are active in farmer groups are 7.099 times more likely to access AUTP than those who are not active in farmer groups. Participation in farmer groups or similar organizations can facilitate access to insurance through information sharing and support between members. This finding is consistent with (Dalmiyatun et al. 2024; Dercon et al. 2014), who stated that farmers in farmer groups tend to have better access to information and understanding of AUTP.

The variable perception of farming risk has a significant effect on AUTP accessibility. The Z value is positive, and the OR value of the risk perception variable is 10.704, meaning that farmers who have a high perception of the farming risk they face are 10.704 times more likely to access AUTP than farmers who have a low perception of farming risk. Each acts and reacts based on their perceptions. This finding aligns with (Bozzola & Finger, 2021), who state that risk perception and interactions are important determinants in adopting and using risk management tools and practices. This study is consistent with the previous study by (Silaban et al. 2022), who found that farmers who frequently experience crop failure are more likely to participate in the AUTP. Furthermore, Clarke and Dercon (2015) state that insurance can be a primary instrument for dealing with significant risks or disasters.

**Managerial Implications**

The government implements the Rice Farming Insurance Program (AUTP) to safeguard farmers against crop failure due to natural disasters, plant pest attacks, infectious animal disease outbreaks, the impact of climate change, or other risks. However, the study results show that the number of farmers accessing AUTP in Aceh Province is still low. Binary logistic regression analysis identified several factors influencing access probability to AUTP: age, education, farm income, land ownership, insurance literacy, activeness in farmer groups, risk perception, claim experience, and AUTP premiums. Research has demonstrated that insurance literacy significantly influences access to agricultural insurance among these factors. However, the average score of farmer insurance literacy in Aceh is still low. Therefore, stakeholders need to make holistic efforts to improve insurance literacy. First, insurance providers such as PT Jasindo need to develop insurance education programs in the form of training or workshops with simple and interactive delivery methods so that they are easy for farmers to understand. The agricultural office, extension workers, and community leaders can participate in this program to foster farmer trust in insurance. Second, the government and insurance companies can utilize digital technology to convey information about insurance benefits, terms and conditions, registration procedures, and claims processes. Third, the government can also provide incentives or awards to farmers who participate in insurance training or socialization. Fourth, monitoring and evaluation of the implementation of education programs are needed to ensure their effectiveness and sustainability.

# CONCLUSIONS AND RECOMMENDATIONS

## Conclusions

The level of insurance literacy of farmers in Aceh Province is mainly categorized as less literate, which is 56.18%, and the average insurance literacy value is 45.56. Of the three aspects of insurance literacy measured, the aspect of insurance attitude has the highest average index (55.80), followed by the aspect of knowledge about insurance (49.50) and the aspect of insurance behaviour (37.50). Based on multiple regression analysis, it is known that the variables of age, length of formal education, and bank account ownership have a significant influence on farmer insurance literacy. Furthermore, the logistic regression analysis shows that getting access to rice farming insurance (AUTP) is affected by many things, such as age, farming business income, length of formal education, membership in farmer groups, AUTP claims experience, perception of farming risk, AUTP premiums, and the farmer insurance literacy value.

## Recommendations

Farmer education about insurance must continue to be implemented to improve their insurance literacy so that farmer accessibility to the AUTP program increases. We cannot separate the role of stakeholders from efforts to improve insurance literacy. The government (Ministry of Agriculture), as the implementer of the AUTP program, needs to facilitate the implementation of AUTP socialization and promotion regularly, systematically, and sustainably. Promotion can be done through various media, such as posters, brochures, banners, television, and websites. Additionally, agricultural extension workers and insurance practitioners must innovate their methods of delivering socialization using materials that are easier for farmers to understand.

This study has limitations, so further research is needed to understand more deeply the accessibility of farmers to the AUTP program. Further research can consider additional variables from cultural and religious aspects that influence farmers' decisions in accessing insurance. Additionally, we can use the Partial Least Squares Path Modeling and other similar models to analyze the impact of insurance literacy on accessibility.

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