Analysis of Adoption Rate and Factors Affecting Rice Farming Business Insurance in Deli Serdang Regency

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ABSTRACT

This study aims to determine the rate of adoption and the factors that affect rice farming business insurance in Deli Serdang Regency. This research was conducted in Deli Serdang Regency for the application of insurance for rice farming in North Sumatra. Rice farming business insurance has been socialized in 2016. This research was conducted in 2019. The total population in this study were 737 farmers from 4 districts in Deli Serdang Regency. From the results of slovin calculations, the number of samples taken was 88 farmers from 737 farmers registered in rice farming insurance. To prove hypothesis 1, rice farming business insurance in Deli Serdang Regency is in the high category and is analyzed using a scoring technique. To prove hypothesis 2, all factors (farm area, education, age, income level, length of farming, level of participation) effect the adoption rate of rice farming business insurance were analyzed using multiple linear regression. Results of the research and analysis carried out on this research the adoption rate of rice farming business insurance in Deli Serdang Regency is in the high category. The factors of income level, length of farming, level of participation have a significant effect on the adoption rate of rice farming business insurance, but farm area, education, and age have insignificant effect on the adoption rate of rice farming business insurance.

Keywords: Adoption Rate, Farm Area, Education, Age, Income Level, Length of Farming, Level of Participation

INTRODUCTION

The country of Indonesia is an agricultural country, where most of the people make a living in agriculture, either directly managing land or in the agribusiness sector. Agriculture is still a mainstay for the Indonesian economy. Agriculture is a very important sector in the national economy. Therefore, the national economic development of the 21st century will still be broadly based on agriculture.

However, in line with the stages of economic development, agriculture-based service and business activities will also increase, namely agribusiness activities will become one of the leading activities of national economic development in a wide variety of aspects. Food crop commodities have a major role in meeting food needs, feed and domestic industries which tend to increase every year in line with the population growth and the development of the food and feed industry so that from the side of national food security its function is very important and strategic.

The development of the food crop sector is one of the key strategies in spurring economic growth in the future. Apart from acting as a large source of foreign exchange earnings, it is also a source of life for most of the Indonesian population. Along with the increasing population in Indonesia, it has raised concerns over a state of "food insecurity" in the future.

The Central Bureau of Statistics in 2018 shows that data on rice harvested area in Deli Serdang Regency has increased from 2015 to 2017, but there has been a decrease from 2013 to 2014. Average rice production in 2013 was 56.15 (Kw/Ha) with a harvest area of 80,104 hectares. , in 2014 56.65 (Kw/Ha) with a harvest area of 74,926, in 2015 it decreased to 56.16 (Kw/Ha) with a harvest area of 75,606, in 2016 it increased to 59.59 (Kw/Ha) with a harvest area of 82,343, 5 Ha, and again experienced a decline in production in 2017 to 57.47 (Kw/Ha) with a harvest area of 89,555 Ha. Constraints in increasing the production of food crops are increasingly complex due to various changes and developments in the strategic environment outside the agricultural sector which have an effect on increasing food crop production.

The government's efforts to meet national food needs, especially rice, are continuously being made, through technological innovation and the implementation of a program to improve farm management, bearing in mind rice is the staple food for the majority of Indonesians (Herdiasti, 1999). Efforts to achieve food self-sufficiency targets, especially rice farming, are faced with the risk of uncertainty as a result of the negative impacts of climate change that are detrimental to farmers (Pasaribu, 2016). Through Rice Farming Insurance, it provides insurance against crop damage due to floods, drought, and attacks by pests and plant diseases or plant-disturbing organisms, so that farmers will receive compensation as working capital for the sustainability of their farming.

Rogers (2003) innovation decision process is a continuous process through which individuals (organizations) go through the innovation knowledge stage, form a change in attitude towards innovation, decide to adopt or reject innovation, implement new ideas, and confirm decisions that have been taken. Of course, the innovation decision process has stages, starting from: the knowledge stage, the persuasion stage, the decision stage whether to adopt or reject rice farming insurance, if it adopts innovation then it is continued at the implementation stage, and the confirmation stage.

So, this study aims to determine the rate of adoption and the factors that affect rice farming business insurance in Deli Serdang Regency.

LITERATURE REVIEW
Rice Farming Business Insurance

Rice farming business insurance is a risk transfer that can provide compensation for farm losses so that the sustainability of farming can be guaranteed. The purpose of holding rice farming business insurance is to protect the economic value loss of rice farming due to crop failure, so that farmers have working capital for the sustainability of their next farm.

The purpose of holding rice farming business insurance is to provide protection to farmers in the event of crop failure as a result of the risk of flooding, drought, and attack by plant pests and to divert farm losses to other parties through insurance coverage. The targets for holding rice farming business insurance are:
1.Protecting farmers from losses due to obtaining compensation in the event of crop failure as a result of the risk of flooding, drought, and or attack by plant pests.
2.Transfer of losses to farmers due to the risk of flooding, drought, and or attack by plant pests to other parties through an insurance coverage scheme.

Innovation

Rogers and Shoemaker in Mardikanto (2009) define innovation as new ideas, new practices or objects that can be felt as something new by individuals or the target community for counseling.

A recent study by Rogers (2003) suggests that the innovation decision process consists of a continuous series of actions and choices through individuals (organizations) by assessing new ideas and

deciding whether or not to adopt an innovation in ongoing practice.

RESEARCH METHODS

This research was conducted in Deli Serdang Regency. The selection of the research area was carried out deliberately with the consideration that this location is one of the locations indicated by the government program for the application of insurance for rice farming in North Sumatra, and socialization has been carried out. Rice farming business insurance has been socialized in 2016. This research was conducted in 2019.

The total population in this study were 737 farmers from 4 districts in Deli Serdang Regency. From the results of slovin calculations, the number of samples taken was 88 farmers from 737 farmers registered in rice farming insurance.

The data analysis for this research was carried out descriptively quantitative (Arikunto, 2011). According to Sugiyono (2003), Effendi (2012) and Irianto (2009) quantitative research is research by obtaining data in the form of numbers or extrapolated qualitative data.

To prove hypothesis 1, rice farming business insurance in Deli Serdang Regency is in the high category and is analyzed using a scoring technique. In essence, scoring is the process of converting an instrument's answer into numbers which are the quantitative value of an answer to an item in the instrument. To prove hypothesis 2, all factors (farm area, education, age, income level, length of farming, level of participation in groups/organizations) effect the adoption rate of rice farming business insurance were analyzed using multiple linear regression.

RESULT AND DISCUSSION
Hypothesis Test 1
From the processed data it can be seen that the total score obtained is 470. While the maximum total score of all respondents is 616. The percentage of adoption rate of rice farming business insurance in Deli Serdang is calculated based on:

$$TA = \frac{NF}{T} \times 100$$

$$= \frac{470}{616} \times 100\%$$

$$= 76.3\%$$

Where:
TA= Adoption Rate (Percentage)
NF=The Value of The Adoption Factor Observed in The Field (Adoption Unit)
T=Total Components/Aspects of Recommended Technology (Units)
Adoption level classification (determined based on expert judgment).
0–44.99 % = Low Adoption Classification.
45–64.99 % = Middle Adoption Classification.
65–100 % = High Adoption Classification.

From the adoption rate percentage category above, it can be concluded that the adoption rate of rice farming business insurance in Deli Serdang Regency is in the high category with a percentage of 76.3%, meaning H_1 is accepted and H_0 is rejected.

Hypothesis Test 2
The factors that affect the adoption rate of rice farming business insurance in Deli Serdang Regency were analyzed using multiple linear regression methods. The things that affect the adoption rate (Y) are thought to be effect by the area of farm area (X_1), education (X_2), age (X_3), income level (X_4), length of farming (X_5), and level of participation (X_6). The regression results obtained can be shown in Table 1.

Table 1. Result of Hypothesis Test 2

Variable	Coefficient	t-Count	Significant
(Constant)	5.101	5.605	0.000
Farm Area	-1.369	-1.776	0.079
Education	-0.011	-0.276	0.783
Age	0.015	1.095	0.277
Income Level	3.978	2.482	0.015
Length of Farming	-0.036	-2.444	0.017
Level of Participation	0.072	2.374	0.020
R^2	0.170		
F Test	0.017		
F-Count	2.771		
F-Table	2.20		
t-Table	1.98		

Source: Data Processed (2020)

Determination Coefficient (R^2)

The adjusted coefficient of determination (r square) is 0.170. This means that 17% of the independent variables (farm area, education, age, income level, length of farming, level of participation) are able to influence the dependent variable (adoption rate of rice farming business insurance) and the remaining 83% is influenced by other factors. not explained in the model.

F Test

Based on Table 1, the second hypothesis is carried out with the F test, namely testing simultaneously (together) the effect of farm area, education, age, income level, length of farming, level of participation on the adoption rate of rice farming business insurance in Deli Regency. Attack. In this test H1 is accepted which is indicated by the Fcount of 2.771, the F table value of 2.20 with a sig of 0.017. This value is greater than F table (2.771>2.20).

t Test

Farm Area

The variable of land area has a value of t count of -1.776, t table of 1.98 with a sig of 0.079. This value is greater than t table (-1,776<1.98). Thus the test shows that H_0 is accepted and H_1 is rejected. These results show that the variable of land area has no significant effect on the adoption rate of rice farming business insurance in Deli Serdang Regency. This is in accordance with the research of Bambang and Farida (2016) which states that the wide variable land has no significant effect on the adoption rate of rice farming business insurance.

Education

The educational variable has a value of t count of -0.276, t table of 1.98 with sig 0.783. This value is smaller than t table (-0.276<1.98). Thus the test shows that H_0 is accepted and H_1 is rejected. These results indicate that the education variable has no significant effect on the adoption rate of rice farming business insurance in Deli Serdang Regency.

Age

The age variable has a t count value of 1.095, t table of 1.98 with a sig of 0.277. This value is smaller than t table (1.095<1.98). Thus the test shows that H_0 is accepted and H_1 is rejected. These results show that the age variable does not significantly affect the adoption rate of rice farming business insurance in Deli Serdang Regency. This is in accordance with the research of Bambang and Farida (2016) which states that the age variable does not significantly affect the adoption rate of rice farming business insurance.

Income Level

The variable level of income has a value of t count of 2.482, t table of 1.98 with a sig of 0.015. This value is greater than t table (2.482>1.98). Thus the test shows that H_0 is rejected and H_1 is accepted. This result shows that the income level variable has a significant effect and the most dominant variable affects the adoption rate of rice farming business insurance in the Regency. Deli Serdang. Based on the partial test, it is known that the relationship between the adoption rate of rice farming business insurance and the income level variable is very close. This can be a conclusion because the higher the income of rice farmers in Deli Serdang Regency, the higher the adoption rate of rice farming business insurance. This is because farmers with a higher income than other farmers will generally have a higher adoption rate of rice farming business insurance. So it can be concluded that there is a significant influence and relationship between income and the adoption rate of rice farming business insurance in Deli Serdang Regency.

Length of Farming

The variable of farming time has a t value of -2.444, t table of 1.98 with a sig of 0.017. This value is smaller than t table (-2.444>1.98). Thus the test shows that H_0 is rejected and H_1 is accepted. These results show that the variable length of farming has a significant effect on the adoption rate of rice farming business insurance in Deli Serdang Regency.

Level of Participation

The variable level of participation with groups/organizations has a t value of 2.374, a t table of 1.98 with a sig of 0.020. This value is greater than the t table (2.374>1.98). Thus the test shows that H_0 is rejected and H_1 is accepted. These results show that the variable level of participation with groups/organizations has a significant effect on the adoption rate of rice farming business insurance in Deli Serdang Regency. Based on the partial test, it is known that the relationship between the adoption rate of rice farming business insurance and the participation rate variable with the group is very close. This can be a conclusion because the higher the level of participation with the rice farmer groups in Deli Serdang Regency, the higher the adoption rate of rice farming business insurance will be. So it can be concluded that there is a significant influence and relationship between the level of participation with the group with the adoption rate of rice farming business insurance in Deli Serdang Regency.

CONCLUSION AND SUGGESTION
Conclusion
From the results of the research and analysis carried out on this research, the researcher can draw conclusions, namely as follows:
1. The adoption rate of rice farming business insurance in Deli Serdang Regency is in the high category.
2. The factors of income level, length of farming, level of participation have a significant effect on the adoption rate of rice farming business insurance. The most dominant income level factor has a significant effect on the adoption rate of rice farming business insurance.

Suggestion
The suggestions that the authors can quote in this study are as follows:

1. For farmers to better understand rice farming business insurance before making a decision to adopt or reject rice farming business insurance. So that farmers can be helped to reduce the risk of loss due to crop failure caused by natural disasters or plant pests.
2. To the government, to conduct socialization more frequently about rice farming business insurance and increase the attractiveness of farmers to participate in the socialization activities of rice farming business insurance.
3. It is recommended that further researchers conduct research on the analysis of the effect of rice farming business insurance on farmers' income.

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