Innovation to speed up the Development of Rose Picking Agro-Tourism in Gunung Sari

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Abstract. Rose picking agro-tourism development plays a significant role in increasing the welfare of farmers or rural community. The research of innovation to accelerate the development of RPA was conducted from traditional to modern agro-tourism in Gunung Sari. The approach of The quantitative and qualitative was used by determining 30 respondents purposively using the saturated sampling method. The results showed that the factors influencing the farmer implementer in adopting innovation in the development of rose picking agro-tourism are the age and frequency of farmers participating in counseling.

1. Introduction

Agro-tourism is one form of tourism activity that utilizes agricultural business as a tourist attraction. Agro-tourism can be in the form of natural scenery, diversity of agricultural production and technology activities and community culture (Ferniza, 2017). The concept of agrotourism is classified based on the activities carried out namely on the farm and off-farm activities. Agro-tourism activities are carried out by exploiting the potential of nature such as agricultural festivals, horseback riding, picking tours of vegetables, fruits, and so on (Budiasa, 2013). Other agro-tourism concepts that can be used are traditional and modern agro-tourism concepts. The concept of traditional agro-tourism offers visitors a vacation to enjoy the natural resources of farming, whereas modern agro-tourism farmers take the initiative to invest to offer more agrotouristic products (Taleska, 2015). The concept of agro-tourism is widely used in various tourist attractions so that many tourist attractions that develop agro-tourism. Hopefully, culture and technology that are following the natural conditions of the environment can be maintained.

Also expected to be an alternative to be able to increase income and maintain the continuation of farmers and rural communities. Agro-tourism development has become one of the potential tourism places to be developed so that the executor roll out agro-tourism and also develop existing agro-tourism. The development carried out provides an innovation that is certainly better and more interesting than before. Innovation will be adopted if the farmer or adopter gains from innovation. Innovation is a new idea carried out by potential adopters. Adoption is the process of changing behavior in the form of knowledge, attitudes, and skills in a person after receiving an innovation (Harinta, 2010). Innovation in the development of agro-tourism has been carried out in various tourist areas, one of which is Batu City. Batu Tourism City (KWB) is one of the tourist choice areas for a vacation. Batu Tourism City is famous for picking apples, strawberries, flowers, vegetables, natural agro-tourism such as Coban and so on. Every year the Office of Tourism looks for breakthroughs to make innovations in developing tourist area in Batu City. The purpose of this is to obtain the vision and mission of Batu City that is to make Batu City Agro Tourism an international standard of character, competitiveness, and prosperity.

Supported by the existence of a tourist icon for each village. This makes the community in a large group to build and develop the area to become a tourist area by utilizing superior commodities in each region. The increasingly comprehensive development of agro-tourism in Batu City has made many businesses and community executors think of innovations to develop agro-tourism. Gunung Sari is one
of the villages in Batu that is currently developing agro-tourism. In contrast to other agro-tourism which provides the concept of fruit and vegetable picking, Gunung Sari Village provides a different innovation, that is agro-tourism with the concept of picking roses. The concept of picking agro-tourism roses has become a unique character and has become a leading icon in Gunung Sari Village.

Agrotourism in Gunung Sari Village has been established since 2012. This agrotourism was formed by the Association of Gunung Sari Farmers Group to improve the community's economy and introduce to the wider community the potential of Gunung Sari. At this time, agrotourism in Gunung Sari is in the development stage. The effort made is to aware of innovation in its development, so that agrotourism is better than before. Innovations are carried out by various parties and must be in accordance with the existing social system in the community so that the community can adopt these innovations in the development of agrotourism in Gunung Sari.

Research on the adoption of innovations in farmers has done a lot. Some of them are research conducted by Darusalam et al (2017) that explains the process of adopting innovative organic liquid fertilizers in Banyuwangi Regency. Research conducted by Faizaty (2016) explains the process of decision making on the adoption of innovations in aquatic saturated soybean cultivation in East Lampung. Some of these studies only focus on the adoption process but have not seen the factors that influence it. Research conducted by Farid et al (2018) explains the factors that influence the adoption of farmers in the JajarLegowo planting system in Malang Regency. Similar research was also conducted by Kadar et al (2016) regarding the factors that influence the adoption of superior varieties in central Java. Wangke et al (2016) also researched the level of farmers' adoption of organic paddy fields in Minahasa Southeast.

Research on adoption was also carried out by Adeniji et al (2007). This study explains the adoption of technology to increase production in cotton crops in Katsimi Nigeria. Some of these studies focused on the factors that encourage farmers to improve research. Previous research also discusses agricultural technology and has not yet been discusses adoption in agro-tourism. Research on similar topics has never been done in Gunung Sari Village. This research is important because the rose-picking agro-tourism in Gunung Sari Village is currently under development. Agro-tourism which was built by Gapoktan stopped and then developed by BUMDES (Village-Owned Enterprises). Development carried out by considering innovations that will be applied. The development process that occurs is inseparable from the farmers being targeted for innovation. The development is carried out with the hope that this agrotourism can be better and more synergized. Seeing this it is necessary to research the adoption process carried out by the community in developing Rose picking agro-tourism in Gunung Sari Village. The objectives of this study are exclusively (1) To describe the process of adopting innovations in the development of Rose Picking Agro Tourism. (2) Analyzing the challenging factors towards the adoption of Rose Picking Agro Tourism.

2. Method

The challenging factors towards the adoption of Rose Picking Agro Tourism. The location of this study was conducted with the consideration that Gunung Sari is the village with the largest producer of rose and centers of roses that are being developed as agro-tourism with the concept of picking roses in East Java. The time of the study was carried out from March to April 2019. The population in this study was the farmers managing the agro-tourism picking roses. Determination of the research sample using the saturated sampling method. The sample used in this study amounted to 30 respondents. Determination of informants using purposive methods. The informants selected were informants who were more discussed and understood about the Picking Rose Agrotourism consisting of the Chairperson of Gapoktan, the Chair and Secretary of the Peasant Women's Group, Head of GunungMawar Village Head, chair Person of Gunung Sari BUMDES. Data collection techniques used in this study include interviews, documentation, and observation. Interview techniques are carried out in two ways, namely interviews and structured interviews. Documentation is done when making direct and un-direct observations. Observation is an observation made by directly observing issues in the field related to research. Analysis of the data in this study uses an interactive model from Miles and
Huberman to describe the process of adopting innovation by agro-tourism farmers. Quantitative analysis in this study uses a logistic regression analysis tool with the help of Stata 14 to analyze the factors that influence the adoption of innovation. Data analysis techniques in the study are described as follows:

a. Analysis of Miles and Huberman

The analysis technique with the interactive model of Miles and Huberman is carried out when the data collection takes place. The data processing is carried out within a certain period and the researcher has analyzed the interview answers. The Miles and Huberman model describes three activities namely, data condensation, data presentation and conclusion drawing (Miles et al, 2014). Explanation of each Miles and Huberman model activities as follows:

1) Data condensation, data condensation means selecting, focusing, simplifying, summarizing and transferring data in the form of field notes. The purpose of data condensation is to produce stronger data. At this stage, the researcher summarizes the data obtained and developed following the problem and research objectives. Field data in this study are in the form of field notes in the form of interviews, and observations and documentation as supporting data.

2) Presentation of data, in qualitative research the results presented are in the form of information that enables the conclusion of a more in-depth analysis to help understand what is happening. The data obtained in this study are categorized according to the purpose and presented narratively and are supported with charts or pictures. The aim is to present the data that has been processed in a way that is easy to understand.

3) Concluding, at this stage the conclusions are drawn temporarily. The conclusions may not appear until the data collection ends, this depends on the size of the field notes and the ability of researchers. Conclusions are made based on the results of condensation data and data presentation. If at this stage it is considered not to answer the research objectives, the researcher can re-collect data look at the presentation of the data. Withdrawal conclusions made by researchers following the formulation of the problem and the objectives of the researcher. The conclusions given are also supported by valid evidence by looking at interview notes, records and documentation following field conditions.

b. Logistic Regression

Independent variables and logit functions are widely used in analyzing the factors that influence adoption. Theoretically the logit function is formulated as follows:

\[ \ln \left( \frac{P_i}{1 - P_i} \right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon \]

Information:
- \( P_i \): Opportunities for farmers to adopt (Pi: 1, adopt ; Pi: 0, not adopt)
- \( 1 - P_i \): Opportunities for farmers to adopt
- \( X_i \): Free Variable vector
- \( \alpha, \beta_i \): The parameter presumptions are random tool logistics functions.

In logistic regression, it does not assume the relationship between independent and dependent variables in a linear form, but rather incorporates factors that are thought to influence adoption in the logistic function relationship.
c. Statistic test

The MLE (Maximum Likelihood Estimation) estimation method is used to estimate parameters in logistic regression. The MLE estimation method gives \( \beta \) estimation results by maximizing its likelihood function. Following is an explanation of the test:

1) Overall Model Test, is a test to analyze the effect of independent variables on the dependent together. The statistical test of the whole model uses the principle of finding the value of \( \beta_i \) by maximizing the likelihood function.

2) Individual Parameter Test used to test the independent variables that have a significant effect on the dependent variable.

3) Coefficient Interpretation, in the regression model interpreting the coefficient, is based on the Odds Ratio coefficient. Odds Ratio is an indicator of a person's tendency to do or not do an activity. Odds Ratio value shows the comparison between the large opportunities to do an activity with the opportunities not to do its activities.

3. Results and Discussion

3.1. innovation adoption process

The process of adopting innovation that goes through the adopter includes the stages of knowledge, persuasion, decisions, implementation, and confirmation. Innovations received by the implementer also consider the nature of innovation. The knowledge phase is the stage where a person starts to realize the importance of innovation and begins to understand the role of innovation. The knowledge phase is seen from the conditions before the innovation is adopted. At this stage, the farmer implementer already knows the innovation of the concept of picking rose agro-tourism. Innovation information is obtained from the socialization held by BUMDES and Gapoktan. According to Rogers (2003) at the knowledge stage, a person has realized and can understand a new idea. The knowledge stage in adopting innovation someone knows about innovation which is an idea given in overcoming a problem that took place in the rose-picking agro-tourism. The process can run because of the communication process that has occurred at each party.

The persuasion stage is a stage after the learning stage, at the learning stage a person's attitude functions at his cognitive level. The persuasion stage looks to a person's attitude to be more active at the affective level (Aida, 2016). At this stage, the agro-tourism farmer already has an overview of knowledge about the innovations offered. The development of rose-picking agro-tourism, the person in charge holds a discussion with farmers to get good results. The implementer meets directly with the farmer or prospective adopter in extending the innovation. Those activities were doing to avoid mistakes that can hinder the development of agro-tourism. Rogers (2003) who explains innovation can be easily adopted by prospective adopters if the innovation is not in conflict with social life. Farm implementer managing agro-tourism make decisions by considering them through the nature of the innovations that have been describing.

The decision stage is the stage of adopting an innovation-decision when a person starts to involve himself in activities that indicate the choice to accept innovation or reject an innovation offered. Agrotourism implementer can accept innovation in agro-tourism development. This decision is made based on considerations held by the managing farmers. These considerations include agrotourism following the five characteristics of innovation based on the theory of Rogers (2003), namely relative advantage, suitability, complexity, the possibility of trial and ability to be observed.

The implementation phase of an adopter will begin to practice an accepted innovation by involving obvious behavioral changes because the innovation is carried out (Rogers, 2003). At this stage, the farmers began to apply innovations in daily life, namely by utilizing existing facilities and participating in managing rose-picking agro-tourism as an educational tourism destination, nature tourism, and agriculture. Farmers managing agro-tourism have done or implemented innovations. Participating in managing agro-tourism implementer also get benefits in the form of salaries every month for those who work in rose-picking agro-tourism. BUMDES will also benefit from running agro-tourism activities because the proceeds from this agro-tourism will later become BUMDES income will become village independent funds.

Confirmation is the last step in the process of adopting innovation, at this stage, a unanimous decision is taken by individuals or groups. Decisions that have been taken have reasons to strengthen, but the possibility to turn away from decisions that have been taken can occur if there are conflicting
statements (Roger, 2003). After carrying out the implementation stage the adopter can accept or even reject innovation. In this study some implementer decide to accept innovation and agro-tourism development is also those who reject it. Implementers who accept innovation also experience a change in mindset towards the farming of roses and also the conditions of implementer who adopt agro-tourism explain their income can be increased from picking agro-tourism roses. Implementer who refuse innovation in agro-tourism development due to age. The more experienced feels that he cannot participate in agro-tourism development well. More experienced Implementer feel that younger farmers will have a greater impact on the development of agro-tourism.

3.2. Factors affecting innovation adoption

Factors that influence farmers to adopt innovation can be known by testing the significance of each independent variable on the dependent variable. As for the variables that are significant to the level of significance can be seen in the table below.

Table 1. Logistic Regression

| Variabel                | Odds Ratio | Coef.       | P > | z |
|-------------------------|------------|-------------|-----|----|
| Age                     | 0.7496221  | -0.2881861  | 0.040*|
| Education               | 1.17023    | 0.1572004   | 0.463|
| Lengthy Farming         | 1.125345   | 0.1180895   | 0.292|
| Land Area               | 0.9997751  | -0.0002249  | 0.590|
| Frequency Farmer following counseling | 2.718224 | 0.999789 | 0.071*|
| Konstanta               | 2710.173   | 7.904768    | 0.258|

Testing the feasibility of the model in logistic regression is to look at the value of Prob> chi2. The model can be said to be feasible if the Prob> chi2 value is smaller than the significance level of the test of 10% or 0.1. Prob> chi2 value in table 16 is 0.0109 which is smaller than the significance level of the test. This means that in this model the independent variable can explain the dependent variable well. The influence of the five variables is indicated by the pseudo R2 value that is equal to 0.3625. This means that the five variables affect the model together by 36.25% while the remaining 63.75% is influenced by other variables not included in the model. Variables that are significant to the level of significance are the age and frequency variables of farmers participating in espionage.

The age variable has a significance of less than 10% which is equal to 0.040 which means age is one of the factors that significantly influences the adoption of innovation. Relatively young farmers have greater energy at work, are quick and easy to accept innovation and are responsive to the surrounding environment when compared with farmers who are relatively old age often reject innovation (Soekartawi, 2005).

The frequency of farmers participating in counseling was 10% significant for the dependent variable with a significant value of 0.071. The frequency of farmers participating in extension workers has an odds ratio of 2.718, which means that if the frequency of farmers following extension agents increases by one level, the probability of farmers adopting increases by 2.71 times. Eboji (2012) states
that besides getting technical assistance, farmers are also required to have knowledge and skills in applying new technologies.

4. Conclusion

Based on the results and discussion, the following conclusions can be summarized:

1. In the process of adopting innovation in the development of agro-tourism picking roses, there are several stages that are passed by the empowering to adopt innovation, namely the stages of knowledge, persuasion, decisions, implementation to confirmation.

2. Farmer implementer also consider the nature of innovation and also the factors inherent in farmers in accepting innovation.

3. Age and frequency of farmers participating in counseling are variables that have a significant effect on the adoption of farmers' innovations in Gunung Sari Village. The age variable has a negative effect on the independent variable. This means that as farmers grow older the implementer decreases the rate of adoption of innovations because it is difficult to accept new information. The frequency instructor variable shows a positive effect on the dependent variable. This means that the more frequency of counseling followed by farmer implementer, the higher the rate of innovation adoption because farmers will become more aware of the innovation.

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