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FARMERS' MOTIVATION TO JOIN THE COCOA-GOAT INTEGRATION PROGRAM: A CASE IN NGLANGGERAN AGRICULTURAL TECHNOLOGY PARK, GUNUNGKIDUL REGENCY

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ABSTRACT

Research of farmers' motivation to attend the cocoa-goat program in Agricultural Technology Park Nglanggeran Gunungkidul Regency is located in Nglanggeran village. This study aims to determine the implementation of the integration of the cacao-goat program in Agricultural Technology Park Nglanggeran, the farmer's motivation level to attend the program and identify factors affecting the farmer's motivation to participate in the program. The method used in this research is the descriptive-analytic method. Location samples were determined purposively while respondents were taken by simple random sampling among 60 people. Data are analyzed with the proportion test and multiple linear analysis. The research result shows the farmer's motivation level to follow the integration program of cocoa-Etawa dairy goat in Agricultural Technology Park reached 92.34%. Farmer's motivation was significantly affected by age. Meanwhile, formal education, farmers' income, duration of farming, perception of farmers, group leader's role, and the role of agricultural extension did not significantly affect farmers' motivation to attend the cocoa-goat program's integration Agricultural Technology Park Nglanggeran.

Keywords: Agricultural Technology Park Nglanggeran, integration of coca-goat program, motivation,

INTRODUCTION

Cocoa is one of the plantation commodities that is widely cultivated by farmers in Indonesia. Apart from the cocoa plant's main product, namely cocoa pods, this plant also produces by-products and can even be called waste that can be used, namely the cocoa pods' skin. Cocoa pod skins can be used as animal feed by carrying out the fermentation process first. The livestock fed by fermented cocoa pod husks are goats, one of which is PE goat. PE goat is a type of goat that can produce meat and milk. PE goats are widely bred because of their excellent adaptability. Apart from having milk and meat, goats also produce by-products in the form of waste. Goat manure can be used as organic fertilizer for plants, one of which is cocoa. Utilization of cocoa pod skin waste as goat feed; on the other hand, goat manure as fertilizer for cocoa plants can be called an integration between cacao plants and goat livestock.

The cocoa-goat plant integration program has been running in several areas, one of which is in Nglanggeran Village. This program involves cocoa farmers and PE goat breeders who live in the Nglanggeran Village area. Therefore, this study aims to determine the level of farmers' and breeders' motivation towards cocoa-goat integration and its factors.

Motivation means arousing motives, generating movement, or moving someone or oneself to do something to achieve a goal (Sobur, 2009). According to Siagian (1995), motivation is a driving force that causes a person to be willing or willing to exert his abilities in the form of skills, energy, and time, to carry out various activities that are his responsibility to achieve goals. Motivation is an impetus by someone to achieve a goal.

Clayton Alderfer has developed a theory of motivation, commonly known as the "ERG" theory. This theory is a theory that breaks the previous idea, namely Maslow's theory. According to Maslow, human needs develop from one need to another hierarchically, but humans who cannot fulfill a need will switch to meeting other needs (Hariadi, 2011). The meaning of "ERG" is an acronym of three words, namely (Siagian, 1995):

1. Existence is someone's existence, which is a fundamental need. It is a real need for everyone to maintain and continue its presence in an honorable manner. It is following human dignity. It can be said that maintaining an

existence in a dignified manner means the fulfillment of basic human needs, when associated with Maslow's theory, represents the fulfillment of physiological requirements and the need for security.

2. Relatedness is a fundamental human nature as a social being. Everyone wants to show his existence with other people and with the environment. It is essential because, without interaction with other people and with the background, one's presence can be said to have no meaning. Compared with Maslow's theory, "relatedness" needs are synonymous with social needs and "esteem" needs.
3. Growth is a need reflected in a person's desire to grow and develop, for example, in increasing skills in a person's job or profession, which allows him to achieve what is generally referred to as "progress" in one's life journey. This need is under Maslow's theory of self-actualization.

Farmers generally run agriculture in a monoculture manner, cultivating only one business type: agriculture or livestock. This farming business is said to be a traditional type of agriculture. If their agricultural business experiences crop failure one day, the farmers do not have the capital to plant again in the next planting season. This problem can be solved with an integrated agricultural system.

An integrated agricultural system is a combination of two or more commodities owned by farmers with simultaneous management. The crop-livestock integration system is a potential alternative that can be implemented to support the development of livestock and plantation agribusiness (Subagyono, 2004 cit Munier et al., 2007).

Agricultural Technology Park is one of the programs of the Agricultural Technology Research Institute. An Agricultural Technology Park also stands together with an agricultural science park. The Science Park and Agricultural Technology Park (TSTP) act as a vehicle that can facilitate the flow of inventions into innovation more efficiently and effectively. Inventions or discoveries produced by researchers will be conveyed to the public to improve existing knowledge. These innovations must be disseminated and adopted by the community to increase economic value (Mulyandari et al., 2015). TSTP acts as a facilitator from these findings to the community.

METHOD

This research uses a descriptive-analytical method. The study's respondents were farmers in Nglanggeran Village who participated in the cocoa-goat integration program in the Nglanggeran Agricultural Technology Park. The number of respondents used was 60 respondents. Farmers' motivation and perception were measured by Likert scale, continued with proportion test. This research is expressed in 2 (two) hypotheses. The first hypothesis is tested using the proportion test, while the second hypothesis is tested using multiple linear regression.

1. Proportion Test

In the test, the proportion of statistical tests is calculated using the formula:

$$Z\ calc = \frac{\left(\frac{x}{n}\right) - Po}{\sqrt{\frac{Po(1-Po)}{n}}}$$

in which:
x : the number of the farmer with high motivation
n : total sample
Po : 50%

a) Hypothesis used::
Ho : P ≤ 50%
Ha : P > 50%

in which:
Ho: It is assumed that less than or equal to 50% of farmers have a high level of motivation in joining the cocoa-goat integration program in Nglanggeran Agricultural Technology Park. This percentage (50%) is considered as the median.
Ha: It is assumed that more than 50% of farmers have a high level of motivation in participating in the cocoa-goat integration program at the Nglanggeran Agricultural Technology Park.
.
b) Criteria of the test
Z-value ≤ Z-table : Ho accepted
Z-value > Z-table : Ho rejected

2. Multiple Linear Regression Test

Hypothesis testing determines the factors that influence farmer motivation, namely age, level of education, length of farming, farmer income, farmer perceptions, farmer/livestock group leader, and agricultural extension agents' role.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + ... + b_7X_7 + e$$

in which:
Y : Motivation
a : Constanta
b : Regression coefficient

X_1 : Age
X_2 : Education
X_3 : Farming experience
X_4 : Income
X_5 : Farmer perception
X_6 : Role of the group leader
X_7 : Role of agricultural instructor
e : Error

a) Hypothesis Test
Ho : b1 = b2 = b3 = b4 = b5 = b6 = b7
Ha : b1 ≠ b2≠ b3 ≠ b4 ≠ b5 ≠ b6 ≠ b7

in which:
Ho: There is no influence or relationship from the factors of age, level of education, farming experience, farmers' income, farmer perceptions, the role of farmer/livestock group leaders, and the role of agricultural instructors on the motivation to join the cocoa-goat integration program in Nglanggeran Agricultural Technology Park.
Ha: There is an influence or relationship from the factors of age, level of education, farming experience, farmers' income, farmer perceptions, the role of farmer/livestock group leaders, and the role of agricultural instructors on motivation to join the cocoa-goat integration program in Nglanggeran Agricultural Technology Park.
b) Criteria of the Test
If sig ≤ α, then Ho rejected
If sig > α, then Ho accepted

RESULTS AND DISCUSSION

Implementation of the Goat Cocoa Integration Program at the Nglanggeran Agricultural Technology Park

The cocoa-goat integration program at Agricultural Technology Park Nglanggeran is one of the programs established by the Ministry of Agriculture through BPTP. Agricultural Technology Parks were built in each province in Indonesia with different characteristics for each region. Agricultural Technology Park Nglanggeran was constructed in the Province of Yogyakarta Special Region, located in the Gunungkidul Regency. The primary commodities of Nglanggeran Agricultural Technology Park are cocoa and goat, with its program, the Goat Cocoa Integration Program. The participants of this program are all farmers in Nglanggeran Village, especially those cultivating cocoa.

This program will run under Balitbangtan for three years, and in the fourth year, it will be submitted to the local government. This program entered Nglanggeran Village starting in 2015 by bringing in new agricultural technology, namely integrating cacao plants with Etawa Peranakan goats.

The programs in Agricultural Technology Park Nglanggeran include introducing group stables for stage goats, cocoa cultivation techniques, fertilization, pest control, cocoa processing, and animal feed development based on cocoa waste. It also concerns the development of the agricultural sector in the introduction of rice VUB, PE goats, and fruit processing (Suharno, 2015). The introduction of cages in groups is carried out within the scope of farmer groups per hamlet in Nglanggeran Village. Agricultural Technology Park and 20 PE goats were given the group stage to be cared for together with the farmer group members. In addition to the group cages, members of the farmer group also receive assistance for a goat manure processing tool, which can later be used to process goat manure into fertilizer. Farmers also get new knowledge about the correct way to cultivate cocoa so that the cocoa plant can produce good cocoa pods. In addition to cultivation methods, farmers are also taught how to carry out cocoa pods' good fermentation. The cocoa's quality is also good so that the selling price is getting higher.

According to farmers, this program was able to provide new knowledge that they did not previously know. For example, how to care for PE goats and ferment cocoa, and process cocoa into processed food. Farmers hope that fairer policies can provide benefits for all parties. Farmers also hope that this program will continue independently because the program period is almost over.

The motivation of Farmers in joining the cocoa-goat integration program

The farmers' motivation in this research is the motivation that comes from the farmers and their environment to join the cocoa-goat integration program at Agricultural Technology Park Nglanggeran. The measurement of motivation in this study uses Clayton Alderfer's theory of motivation. This theory is divided into three components, namely, Existence, Relatedness, and Growth. Existence is a necessity to sustain life, and it is a basic human need for survival, such as food, clothing, shelter, and the need for security. Meanwhile, relatedness is a person's need to connect with other people. Furthermore, growth is a person's need to develop, improve skills, and add insight.

The results showed that the average level of farmers' motivation in participating in the integration program of cocoa-goat in Agricultural Technology Park Nglanggeran was 92.34%. The research results regarding farmers' motivation in the cocoa-goat integration program in

Nglanggeran Agricultural Technology Park can be seen in Table 1.

Table 1. Farmer Motivation Level to Join Goat Cocoa Integration Program at the Nglanggeran Agricultural Technology Park

No.	Motivation	Percentage (%)
1	Existence	87.83
2	Relatedness	97.08
3	Growth	92.12
	Average	92.34

Source: Primary Data Analyzed in 2017

Based on the table above, it can be described as follows:

a. Existence

Existence includes implementing an integration program for cocoa-goat to meet basic needs, such as food, clothing, and shelter. The motivation achievement of farmers in joining the cocoa-goat integration program at Agricultural Technology Park Nglanggeran for this aspect of existence is 87.83%. Based on the analysis of the distribution of farmers' motivation levels in participating in the integration program of cocoa-goat at Agricultural Technology Park Nglanggeran, it has a relatively high existence motive. Farmers who participate in this program hope that their participation in the program will help fulfill their basic needs.

b. Relatedness

Relatedness is a person's need to deal with other people, such as farmers, extension workers, farmer group leaders, traders, and other parties related to their farming. The relatedness aspect has an achievement of 97.08%. These results indicate that the relatedness aspect is classified as high motivation. Establishing good relationships between farmers and other parties related to this program will influence farmers in implementing the plan.

c. Growth

The growth aspect is a person's need to develop. In this case, developing means developing knowledge, skills, and gaining experience by participating in this cocoa-goat integration program. The achievement of motivation from this aspect of growth is 92.12%. These results indicate that the growth aspect is high in motivating farmers. This high achievement is due to the cocoa-goat integration program; farmers will gain new knowledge in agriculture, especially in cocoa and livestock cultivation and post-harvest processing. With this program, farmers will become more knowledgeable and experienced to provide better products.

This study indicated that farmers' participation in the cocoa-goat integration program was not motivated by their primary needs, but because they wanted to have more and better fellow farmers. Good relations between fellow farmers and the establishment of cooperation with the community are the most significant encouragement for farmers to participate in the program. In this case, the community is the residents around Nglanggeran Village, whether they are involved in the program or not. A good relationship between humans may not fulfill their primary needs, but a good relationship will benefit the perpetrators in other activities. The need for existence with the lowest average motivation (87.83%) can be caused because their basic needs have been met with other businesses. Nglanggeran Village is a tourist area, so that not a few residents also work at the tourist site. Apart from tourist areas, farmers in this area also work in other places such as construction workers. According to Alderfer's theory, the higher motivation from the relatedness component again proves that a person's needs are flexible. A person's needs can change at any time. The need for existence is not always the primary need that must be fulfilled. If the requirement for existence cannot be fulfilled, a person can fulfill their relatedness needs, or growth needs first.

Based on the proportion test, it is known that:

Z-value = 2.645

Z-table = 1.645

Based on the analysis results using the proportion test, the Z-value was 2.645, with a Z-table value of 1.645. It means that the value of Z-value > Z-table so that Ho is rejected and Ha is accepted. It can be concluded that more than 50% of farmers have high motivation for the Goat Cocoa Integration program in the Nglanggeran Agricultural Technology Park.

Factors that influence farmer's motivation in joining the cocoa-goat integration program

The level of motivation of farmers in participating in the cocoa-goat integration program in the Nglanggeran Agricultural Technology Park,

Gunungkidul Regency, is thought to be influenced by several factors. Motivation, in this case, is influenced by internal factors and external factors. Internal factors include age, education level, length of farming, farmer's income, and farmer perceptions. In contrast, external factors include the head of the farmer group and the agricultural instructor's role. This study's third objective was to determine the factors influencing farmers' motivation in participating in the goat cocoa integration program in the Nglanggeran Agricultural Technology Park, Gunungkidul Regency.

The second hypothesis testing in this study uses multiple linear regression analysis using IBM SPSS 22 software. The method used is the backward method. The results of all independent variables at this initial stage are displayed, then gradually, the independent variables that have no significant effect will be eliminated. In this multiple linear regression analysis, the dependent variable (Y) is the farmer's motivation. In contrast, the independent variable (X) includes the farmer's age, education level, length of farming, farmer's income, farmer perceptions, the farmer group leader's role, and agricultural extension. The results of multiple linear regression analysis of the factors that influence farmers' motivation in participating in the integration program of cocoa-goat at Nglanggeran Agricultural Technology Park can be seen in Table 2.

Table 2. The Multiple Linear Regression Result of Factors that Influence Farmer's Motivation to Join Goat Cocoa Integration Program at the Nglanggeran Agricultural Technology Park (Model 1)

No	Variables	Regression Coefficient (B)	t-value	Sig.	
1.	Age (X_1)	-0.203	-1.950	0.057	*
2.	Education (X_2)	0.009	0.038	0.970	NS
3.	Farming Experience (X_3)	0.063	0.692	0.492	NS
4.	Farmer's Income (X_4)	$2.805E^{-7}$	1.647	0.106	NS
5.	Farmer's Perception (X_5)	0.145	0.874	0.386	NS
6.	Role of the Group Leader (X_6)	-0.004	-0.040	0.968	NS
7.	Role of Agricultural Instructor (X_7)	-0.017	-0.170	0.866	NS
	Constanta				53.719
	R square				0.134
	Adjusted R Square				0.017
	F-stat				1.362
	F-table				1.840

Source: Primary Data Analyzed in 2017

in which:
* : significant at α=10%
NS: Not significant at α=10%

Based on this table, it can be seen that the level of education, length of farming, farmers' income, and farmer perceptions, the role of the farmer group leader, and the role of agricultural extension agents do not significantly influence farmer motivation. It is because these factors show a value greater than the significant value α = 0.01. The regression coefficient value for the age variable (X1) is -0.203, the level of education (X2) has a regression coefficient value of 0.009, farming experience (X3) has a regression coefficient value of 0.063, the farmer's income (X4) has a regression coefficient value of $2.805E^{-7}$, the perception of farmers (X5) has a regression coefficient value of 0.145, the role of the farmer group leader (X6) has a regression coefficient value of -0.004 and the role of the agricultural instructor (X7) has a regression coefficient value of -0.017.

Linear regression analysis in this study will use the backward method. Using the backward method, multiple linear regression analysis will eliminate independent variables that do not significantly influence the dependent variable. Multiple linear regression analysis in model 1, as in table 2, will be followed by a further regression model leaving the independent variable that has a significant effect on the dependent variable. This study produces Model 6 as the final model. This model will display the variables that have a considerable impact on the dependent variable. Model 6 can be seen in Table 3.

Table 3. The Multiple Linear Regression Result of Factors that Influence Farmer's Motivation to Join Goat Cocoa Integration Program at the Nglanggeran AGRICULTURAL TECHNOLOGY PARK (Model 2)

No	Variable	Regression Coefficient (B)	t-value	Sig.	
1.	Age (X_1)	-0.115	-2.174	0.034	*
	Constanta			56.587	
	R square			0.075	
	Adjusted R Square			0.059	
	F-stat			4.727	
	F-table			2.79	

Source: Primary Data Analyzed in 2017

Keterangan:
* : significance at α= 10%
NS: Not significant at α= 10%

Based on Table 3 above, it can be seen that there is one independent variable that significantly affects the dependent variable motivation at a significant level of alpha = 0.1. The age variable has a significant level of 0.034, which is smaller than the significant alpha level. The independent variable that influences it is the variable age. Based on the results of multiple linear regression analysis in Table 3, the regression equation is obtained as follows:

Y = 56,587 + (-0,115) X1

in which:
Y : Farmer's motivation to join the Goat-Cocoa Integration Program at Nglanggeran
X1 : Farmer's Age

The value of Adjusted R Square shows how much the entire independent variable explains the dependent variable. The Adjusted R Square value is close to 1, which means that the regression model will increasingly provide the right results. The value of Adjusted R Square based on Table 3 is 0.059, which means that age variables influence 5.9% of farmers' motivation in joining the Goat Cocoa Integration Program at Agricultural Technology Park Nglanggeran. In contrast, the rest is influenced by other factors outside the model. The age variable has a significance value of 0.034. This value is smaller than α (0.1), so the age factor affects farmers' motivation. The age variable has a coefficient value of -0,115. The negative coefficient value means that the age variable and the motivation variable have a value that is inversely proportional to the value. The younger the farmer, the greater his motivation in joining the cocoa-goat integration program. A constant value of 56.587 indicates the level of motivation without being influenced by any factors. The constant value of age is -0.115, which means that each increase of one age unit will decrease the motivation value by 0.115. The regression coefficient value, which shows a negative number, means that the decline in age tends to increase motivation. Based on the regression equation, the hypothesis regarding the relationship between age variables and farmer motivation in joining the cocoa-goat integration program is accepted because it has a negative regression coefficient value. Thus, it can be concluded that the younger the farmers are, the higher their motivation will be in joining the cocoa-goat integration program at Agricultural Technology Park Nglanggeran.

According to Wiyono et al. (2015), the age of farmers, in general, can affect farming activities, in this case affecting their physical condition and ability to think. The younger the farmer, the more physically strong and dynamic it tends to be in managing his farm to work stronger than the older farmer. With a stronger physique, they will perform better than farmers who have an older age. According to Soekartawi (2005), younger farmers usually have high curiosity, so they try to adopt innovations more quickly even though they are still inexperienced in adopting these innovations. Besides, younger farmers dare to take risks in trying innovations for the betterment of their farming.

CONCLUSIONS

Based on the discussion and results of the analysis carried out in this study, the following conclusions can be drawn:

1. The implementation of the cocoa-goat integration program at Agricultural Technology Park Nglanggeran went well and received good responses from farmers. The technology provided can be accepted and applied by farmers and farmer groups. Farmers hope that this program can continue and develop to offer benefits to farmers and other parties.

2. Overall, the farmers' motivation to join the cocoa-goat integration program at Agricultural Technology Park Nglanggeran was high, namely 92.34%. Based on the Existence motivation aspect of 87.83%, the Relatedness aspect of 97.08%, and the Growth aspect of 92.12%.
3. The factor influencing farmers' motivation to join the cocoa-goat integration program at Agricultural Technology Park Nglanggeran is age. The reason for farmers joining the cocoa-goat integration program at Agricultural Technology Park Nglanggeran was not significantly influenced by factors such as education level, length of farming, farmer income, farmer perceptions, and the group leader's role and the agricultural extension agents.

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