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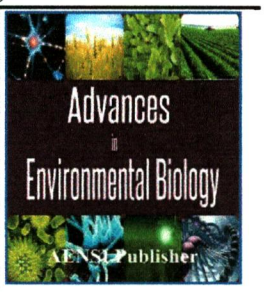

Effect of Attitude, Subjective Norm And Behaviour Control on Technology Adoption Rate of Goat Farmer

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ABSTRACT

This study analyzed the effects of attitude, subjective norm, and behavior control that perceived to the level of technology adoption of goatfarming in the Limboro District, PolewaliMandarRegency West Sulawesi Province Indonesiaandfound the most dominant factor in determining the level of technology adoption of goat farming in Limboro District,PolewaliMandar Regency. This study used quantitative explanatory. A sample of 85 farmers was divided in two villages: high intensification village in 39 of respondents and low intensification village in 49 respondents. Sampling methodused a proportional random sampling technique by observing the proportion of each village. The samples were determined by Slovin's formula with a level of precision specified was 10%. The results showed that the attitude factor and behavior control of farmers had a positive effect on the rate of technology adoption of goat farming. This means thatthe farmers in Limboro District, PolewaliMandarRegency had a high level of confidence (positive attitude) and intense behavior control that caused the farmers believed in innovation of technology. The variable of subjective norms did not provide a positive effect on the rate of technology adoption. The inconsiderable involvement of family, friends, business relations and instructors in farmingcaused thepoor of support and motivation to adopt the technology.

KEYWORDS: Theory Of Planned Behavior; Technology Adoption; goat farming

INTRODUCTION

PolewaliMandar Regency is one of goat population center in Indonesia and has a largest contribution in the provision of goat in West Sulawesi Province. It has been proved by Central Bureau of Statistics of West Sulawesi in 2013. PolewaliMandar Regency contributed 195,061 goats (71.40%) of goat total in West Sulawesi Province. Based on data from the Central Bureau of Statistics of PolewaliMandar Regency during 2009-2013, the number of goat from PolewaliMandar Regency reached 36,249 of goat.

Goatfarming in PolewaliMandar Regency is one of the businesses that assist the economic subsistence and become a source of income for farmers. Hence, the number of households (14,191 households) raised goat by utilizing the available natural resources in the surrounding area. However, goat farming cannot be used as main business tosupport the economic condition of farmers, whereforeeach farmer only has 2 to 5 goat [1]. The poor ownership of goat is due to the large number of farmers still dependent on traditional maintenance system. [2]suggested that low-scale conventional maintenance systems (under 5 goat)relatively will be difficult to transform into agribusiness enterprises that sustained the economic condition of farmers.

The adoption of technology package is necessary to increase the scale of livestock. It is expected to increase goat productivity and achieve the growth rate of production as expected. Increasing the goat production by the improvement of maintenance technology packages such as technology of feed, reproductive, enclosure, and

disease control components. The other technology packages which applied in ruminant are waste treatment and utilization[3]

The introduction of technology packages on goat farming in PolewaliMandar Regency was conducted in 2004 by instructors. The purpose of this was based on the annual development plan of the PolewaliMandarand refered to the livestock national program. The focal point of livestock development in a broad sense is the increasing of livestock population from year to year, including goat [4]. In fact, however, based on the initial survey that has been adopted the technology package in goat farming, it is still very various. Moreover, the tendency of farmersto not adopt the technology thoroughly and sometimes the adoption of technology package had not been sustainable.

The rate of adoption technological packages are still varies in goat farming of PolewaliMandar. It is affect by two main factors (a) external and internal factors and (b) the interaction of both factors. The interaction of both the external and internal factors described in Theory Of Planned Behavior, which explains that human behave are influenced by social psychological factors (attitudes, subjective norms and behavioral control perceived)[5]. In addition, [6] explained that it wasnot only emphasizes the rationality of human behavior, but also to belief that the target behavior is under the control of individual consciousness. Besides that, behavior depended not only on the intentions of the individual but also on other factors which were not under individual control, such as the availability of resources and opportunities to display that behavior.

Objectives of the study

The broad objective of this study was to assess the level of technology adoption of goat farmers in Limboro district, PolewaliMandar. Specifically, the study seeks to:

1. determine the effect of attitude, subjective norm, and behavioral behavior that is perceived to the adoption rate of goat farming technology in Limboro district, PolewaliMandar
2. find the most dominant factor determine the adoption rate of goat farming technology in KecamatanLimboro, KabupatenPolewaliMandar

Methodology

The study was carried out from October to December 2015 in Lembang-Lembang and Tandassura Village, Limboro district, PolewaliMandar. The division area was based on intensification level. Tandasura village has a high intensity while Lembang-Lembang Village has low intensity. Relatively, farmers from both of the villages did not adopt the technology. This study design used explanatory quantitative research with 85 samples of farmers in two villages selected by proportional random sampling technique.The population for this studycomprised all farmers in two villages (536 farmers). Sampling technique was used proportional random sampling with regard to proportion of each village. The samples were determined by Slovin formula with the level of precision was 10% [6]. The representative samples were 85 farmers with the proportion of Tandasura (36 farmers), and Lembang-lembang Village (49 farmers).The data analysis used inferential statistical analysis (Multiple Linear Regression). This analysis used to determine the effect of attitude, subjective norm and control behavior of farmers on the technology adoption of goat farming in Limboro district, PolewaliMandar.Previous to Multiple Linear Regression, the regression feasibility test (SPSS for windows 16.0) was conductedto find out a regression model was feasible or not. Predictors used as independent variables should be feasible. This feasibility was known by the Standard Error of Estimate<Standard Deviation. Multiple linear regression analysis for each variablewas used in this study that consisted of independent(attitude, subjective norm, and control of behavior) and dependent variable (technology adoption).

RESULTS AND DISCUSSION

Characteristics of Goat Farmers

Characteristics of farmers in this study comprised age, education, long of farming experience and total of goat. Generally, age of farmerswere at productive age (97.65%), both in Lembang-Lembang, and Tandassura. The productive age level was a tendency of person to havea high work ethic. [8]Explained that the farmers who have younger age (productive age 20-64 years) were generally had a high sense of curiosity to everything and more interestedto adopt the technology. Further,[9] argued that a productive age person usually has a passion to know anything.

There was a variation in the level of education, from lowest (no school)to highest (completed the college). The level of education of farmers was 67.06% (from no school to elementary school graduates). The level of education was closely related to the quality of human resources. The higher level of education of farmers meant the higher quality of human resources and the productivity of workperformance [10]. Furthermore, [11] suggested that the level of education affects the high absorption and rate of change in one's thinking. The farmers with the higher level of educationhad a better maintenance management because they could adopt the

innovation, change the way of thinking and know to solve the problems. [8]Stated that the level of education will improve theconversance and skills.

The level of experience showed that almost farmers have been farming for 18-50 years (63.53%), and 36.47 % experienced in farming less than 18 years. Generally,farming experience obtained from their ancestors. A long farming experience indicated that the conversance and skills of farmersto management of livestockwere getting better. An increasingly long farming experience signified a higher adoption rate of technology. The results of this study were supported by the previous research of[12] who examined the factors that affect the adoption of pig farmers in the Ashanti area of Ghana. They found that long farming affects the adoption rate of developmental technologies.

Ownership of livestock is a big illustration of the scale of goat farm business. Most of farmers had below 5goats(58.82%) and the rest was 5-8 goats (36.47%). Thus, they were classified as conventional or traditional farmers. This conditionmight make the farmers less motivated to improve the knowledge, skills and insights about the maintenance of goat. It was in accordance with the opinion of [2] argued that relatively, low-scale goat traditional farming system (under 5 goats) would be difficult to transform the business from traditional to commercialwhich then sustained the household's farming economy.

Model Feasibility Test

Table 1 shows the regression feasibility test. Table 2 shows that attitude variable, subjective norm and control of farmers behavior had a tight correlation and adoption of goat farming technology (R=0,602). F test shows that attitude variable, subjective norm and control of behavior had a significant effect to adoption of technology (F-value=15,333, F-table=1,989). F-value washigher than F-Table.

Table 1. ANOVA[b]Regression Feasibility Test

	Model	Sum of Squares	Df	Mean Square	F	Sig
1	Regression	320	3	107	107	000[a]
	Resi dual	564	81	007	007	
	Total	884	84			

a. Predictors: (Constant), Behavior control, Subjective Norm, and Attitude Variable

b. Dependent Variable: Technology Adoption

Table 2. The effect of attitude, subjective norm and behavior control of farmers on adoption of goat farming technology in Limboro district, PolewaliMandar

Independent Variable	Bound Variable	Regression Coefficient (B)	T_{value}	Sig
Constants 0.034	Technology Adoption (Y)			000
Attitude (X1)		429	3.674	000
Subjective Norm (X2)		096	1.758	083
Behavior Control (X3)		232	3.035	003
Multiple R = 0.602	F_{Value} = 15.333	t_{Table}= 1.989		
R Square = 0.339	F_{Table} = 2.71			

Attitude of farmer on the technology adoption

Adoption is a process that occurred since the first time someone hears something new for the person to adopt (accept, implement, use) new things. In the process of adoption, farmers, ranchers target take a decision after going through several stages [13] The result showed that attitude factor had apositive effecton the adoption rate of goat farming technology in Limborodistrict,PolewaliMandar (B=0.429). This was due to the high level of farmer belief on technology. The positive attitude of breeders is based on beliefs and beliefs behaving towards the consequences (outcomes) that will be generated when adopting a technology [14]

The farmers who hadbelief that behavior produced a positive outcome, they will have a positive attitude, and they would bemore motivated to adopt a technology. As well as the opinion of [15]that stated that the alignment and effectiveness of technology in solving the problems caused the farmers be more confident in the progress of technologies. [16]also explained that the inherent advantages of innovation (technology) would have a significant effect on the farmer belief to adopt a technology. [17]stated that positively, attitude affect interest of customers to receive and adopt a technology, especially internet banking services in Singapore.

Subjective norm of farmer on the technology adoption

The result showed that subjective norm positively did not affect the adoption of goat farming technology in Limborodistrict,PolewaliMandar Regency. The value of regression coefficient is 0.096 (Table 2). It indicated that subjective norms (family, friends, business relations and instructors) did not positively affect the farmers to adopt the technology in goat farming. Rather, [18] indicated that the perception of other people like friends and family, have a positive and significant effect on intention to behave. Furthermore,[19]argued that subjective norms can affect individuals to choose jobs, make sustainable product purchases and purchase of organic food [20].

There was no effect of subjective norms caused by the very low involvement and support of business relations and instructors inLimborodistrict,PolewaliMandar. Thus, the farmers were not motivated because there was no an offers and encouragement from other parties.[21] argued that to make a change of behavior requires the support from the others. Motivation from others has a great role to the actions of a person in behaving. Highly motivated farmers will strive to expand their business through behavioral change, such as attempting to adopt science and technology to improve business productivity. Motivational factors have a great influence on the changes of person's behavior in livestock business, and to find the reason to do something.

Behavior control of farmer on the technology adoption

The result showed that the control of farmer behavior had a positive effect on the adoption of goat farming technology in Limborodistrict, PolewaliMandar. Table 3 showed the results of F test that had t-value was greater than t-table (3.035> 1,989). Regression coefficient for control variable of farmer behavior was 0,232 (Table 3). This value indicated that control of behavior caused the positive effect to adopt technology in goat farming. Positive control of behavior was caused by goat farming in Limboro district has become a branch of business that madethe farmers be more motivated and be able to control the risks that occur in maintenance of goat. The control of positive behaviors was characterized by the ability to control and bear risks will shape the behavior of farmers who hadbelief in technology, either a belief in the ability to control or ability in terms of implementing the technology.

Conclusion

1. Behavioral factor and control of farmer's behavior affect the technology adoption of goat farming. It was because goat farmers in Limboro district, PolewaliMandar had a high level of trust (positive attitude) on technology and strong behavior controls that caused farmers hada belief in technological innovation. While subjective norm did not affect the technology adoption, thus there wasa lack role of family, friends, relations andinstructors,becausefarmers get less support and motivation to adopt technology in their goat farming.
2. The most dominant factor affecting the rate of technology adoption in goat farming was attitude factor.

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