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THE ROLE OF SUPPORTING ENVIRONMENTAL FACTORS ON THE USE OF CYBER EXTENSION BY FARMERS OF FOOD CROPS AND HORTICULTURE IN LAMPUNG PROVINCE

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ABSTRACT

The use of information and communication technology (ICT) in agriculture (cyber extension) can accelerate the process of innovation by farmers. But in developing countries its success depends on its supporting factor. This paper reviews a study that aims to analyze the availability of supporting environmental factors in the use of cyber extensions and their relation to communication behavior of horticultural farmers in accessing ICT-based information sources. The research design used was quantitative research. The research was conducted in Lampung Selatan and Metro municipalities. The study was conducted in July 2017 to November 2017. The study population is farmers of food crops and horticulture. A sample of 207 people was taken at random. Data were analyzed descriptively and inferentially with Rank Spearman Test. As a result, there was no significant relationship between supporting environmental factors and communication behavior of horticultural farmers. Conversely there was a significant relationship between the level of availability of information access facilities and the level of availability of conventional information sources in accordance with access to agricultural information based on ICT. The authors described the implications of this research, particularly on the policy of cyber extension for agriculture.

Keywords: Cyber extension, support factor, communication behavior, information access, horticulture

INTRODUCTION

The development of technology in the era of globalization, especially related to the utilization of ICT (Information and Communication Technology) has been very rapid. Every business sector should benefit from the utilization of ICT. Faster and progressive business sector actors in adopting ICT innovations will benefit from ICT first. Sajda et al's research (2014) concluded that the use and application of ICT is an important component in developing countries such as Indonesia. The use of ICT in India increases as a mean of increasing farmers' income and capability. Large agribusiness organizations, government and private companies have set up telecenters to meet their goals. Use of ICT can help cope. Some of the ICT challenges faced by developing countries in development. The study also said differences in geographic conditions need to be taken into account to support the development and growth of telecenters.

Agriculture is a business field that has promising prospect in Indonesia especially in Lampung Province. The potential of human and natural resources which is equipped with adequate facilities and infrastructure is the main capital to run the agricultural business in rural areas and will promise better life for the people in rural areas. Some of the Department of Agriculture programs related to ICT utilization are very relevant to meet farmers' need for agricultural information.

Cyber is a new media in the form of various communication technologies that share the same features, which in addition to the new is also possible with digitalization and wide availability for its use as a personal communication tool. New media are diverse and not easily defined, but in their application new media enter the realm of mass communication or directly and indirectly have an impact on "traditional" mass media. The main focus is on collective activity called Internet (Denis 2011). Sharma (2005) says there are several potential uses of cyber extensions that are: (1) Providing information continuously, (2) Rich information, (3) Offering rapid international achievement, (4) Cutting steps from traditional processes and (5) oriented to the recipient.

The role of ICT is indispensable in the agricultural sector to increase the productivity of the farms produced. To manage farming, farmers need a variety of information on agriculture, such as government policies, research results from various disciplines, other farmers' experiences, and current information on market prospects related to production facilities and agricultural products. Sources of such information can they get one of them by accessing the internet. By accessing the internet, farmers can get a variety of information about agriculture. Not only that, they can also find up-to-date information on international market prospects related to the means of agricultural products and production. Utilization of ICT can overcome the problem of lack of access to information about agricultural innovation. ICT in agriculture can prepare farming information that farmers need in a timely and appropriate manner

This study aimed to (1) analyze the availability of environmental factors supporting the use of cyber extension information in Lampung Province and (2) analyze the correlation between the availability of supporting environmental factors with communication behavior of horticultural farmers in Lampung Province. Hypothesis proposed in this research was there was relation between availability of supporting environmental factors with communication behavior of horticulture farmer.

RESEARCH METHODS

This research was designed as a quantitative research tian "which gives more weight to the use of quantitative method (Sugiyono 2013). Quantitative research was done by descriptive survey method causality. The research was conducted in Lampung Selatan and Metro municipalities. The location of this research was in 8 villages which have affordability to internet network that is two villages in sub-district Jati Agung, two villages in Natar sub-district of South Lampung Regency and two villages in West Metro Municipality and two villages in South Metro Subdistrict. Site selection was deliberately determined with consideration of these two districts having potential for developing food crops and horticulture (fruits, vegetables and ornamental plants) (BPS Lampung Province 2012) and having a good internet network. The study was conducted in July 2017 until November 2017. The research population was farmers of food crops and horticulture in Lampung Province. Vegetable crops are seasonal so that information obtained from information sources allows for application. Samples were deliberately taken as many as 207 people. Data used in this research were primary data and secondary data. Primary data were data obtained directly from the respondents through a structured interview using a questionnaire. Secondary data were data obtained from relevant agencies and the results of the literature study. The data obtained were analyzed descriptively and inferentially with Rank Spearman Test.

RESULTS AND DISCUSSION

The relationship between supporting environmental factors with communication behavior of vegetable farmers. Bivariate analysis of correlation between supporting environment factor (X2) with communication behavior was done with Rank Spearman correlation which result can be seen in Table 1. Table 1 shows no significant relationship between supporting environmental factors with communication behavior of horticultural farmers at 90 percent confidence level. But there is a very significant relationship between the level of availability of agricultural information access facilities with farmers communication behavior toward ICT-based information sources.

Rank Spearman correlation value of some supporting environmental factor indicator was greater than $\alpha = 0.01$ which meant that there was no correlation between indicator of potential supporting environmental factors with the variable of communication behavior. However, the significance of the indicator level of the availability of ICT-based agricultural

information access facilities and the level of availability of traditions in accordance with ICT-based agricultural information access was smaller than $\alpha = 0.01$ which meant there was a relationship between the availability of ICT-based agricultural information access facilities and the availability of traditions on communication behavior toward the source ICT-based information. This means that the better the availability of ICT-based agricultural information access facilities and the appropriateness of tradition with ICT-based agricultural information access, the better the farmer's communication behavior toward ICT-based information sources (Table 1).

Table 1. Rank Spearman correlation coefficient showing the relationship between supporting environmental factors with communication behavior

Supporting Environment	Spearman Rank Correlation Coefficient (Rs)		
	ICT-based information resources	Conventional information resources	Total
Supporting Environment	0.118	-0.042	0.107
Level of availability of ICT tools	0.512**	0.019	0.388**
Level of availability, quality, and accessibility of ICT network infrastructure	- 0.027	0.017	0.014
Availability level of conventional agricultural information access	-0.074	-0.059	- 0.037
Level of availability of traditions appropriate to ICT-based agricultural information access	-0.226**	-0.014	-0.098
The level of family support that supports the use of information-based resources ICT and conventional	-0.026	-0.087	-0.104

Description: ** significant at 99 percent confidence level

Based on this data analysis it could be concluded to use ICT-based information source hence there must be guarantee of availability of ICT-based agricultural information access facilities and the appropriateness of tradition to ICT-based information source. This was different from farmer communication behavior in using conventional information sources. Communication behavior in using conventional information sources was considered a part of farmer's life, so there is no need for conformity with tradition. The source of conventional information was already a tradition in society. Based on the opinion of farmers that the condition of cellular network in South Lampung Regency is quite good. In more detail Table 2 shows the relationship between communication behavior indicators.

Table 2. The correlation coefficient of Rank Spearman correlation between indicator of communication behavior variable of farmer of food crop and horticulture

Communication Behavior	Spearman Rank Correlation Coefficient (Rs)		
	ICT-based information resources	Conventional information resources	Total
ICT-based information resources	-	0,308**	Total
Conventional information resources	0.308**	-	0.723**
Total	0.765**	0.723**	-

Description: ** significant at 99 percent confidence level

Rank Spearman analysis showed that there was a significant correlation between horticultural farmer communication behavior indicator in using the available information source in the research area. Farmers who were intensive enough to use ICT-based information resources would be more intensive as well in using conventional information sources. Similarly, the less intensive farmers used ICT-based information resources, it would be increasingly not intensively using conventional information sources. This meant that both ICT-based information sources and conventional information sources were playing an equally important role in meeting farmers' need for information. Farmers will use an information resource that was affordable and available at all times, qualified, easy to use and understandable. This meant that efforts to increase the use of ICT-based information resources could be made using conventional information sources.

Supporting Environmental Factors

Supporting environmental factors were analyzed with indicators of the availability of ICT-based information facilities, the level of availability of ICT network infrastructure, the level of availability of conventional agricultural information access facilities, the level of availability of traditions compatible with ICT-based agricultural information access, the level of family support available in the use of ICT and conventional information. Figure 1 shows the environmental factors supporting the availability of ICT-based information facilities and the level of infrastructure availability, in the research area is still relatively low. This is a significant constraint to develop the use of cyber extension as an alternative source of agricultural information. This is in accordance with the results of research done by Kurniasih et al. (2013) that the completeness of facilities and infrastructure that support the implementation of e-government in Cimahi determine the success of the apparatus to exercise their rights and obligations. Other indicators such as the suitability of tradition and family support are good. This is a big enough capital for farmers.

Communication behavior of vegetable farmers

Based on the results of interviews with farmers, it was known that the ability of farmers to buy ICT services was still low. Communication behavior of horticultural farmers had not been fully interested in the use and utilization of ICT services. This is in accordance with the results of Djauhari (2011). Communication behavior 78.30 percent of farmers to search for agricultural information from ICT-based information sources was low. This happens because new farmers recognize ICT as a source of agricultural information.

Farmers first recognize HP surf followed by internet cafe, HP did not surf and internet computer. Average Internet surfing was known 2.86 years ago and the most recent known was the HP did not surf 0.14 years ago. The same thing also happened on the indicator of communication behavior duration where 92.70 percent of farmers were classified briefly and 80.00 percent of farmers frequency was classified briefly utilizing ICT. Arief (2013) said in its implications in the public the use of new media known as the Internet can convey information and news that can shape public opinion.

The use of information coming from internet cafes/telecenters in South Lampung District is only one way, while for Metro municipality the largest percentage in two directions. The results showed that information obtained from ICT would be directly absorbed by horticultural farmers without conducting information selection first.

CONCLUSION

There was a significant relationship between the indicator of the availability level of ICT-based agricultural information access facilities and the level of availability of traditions appropriate to access to ICT-based agricultural information with farmers communication behavior toward ICT-based information sources; and supporting environmental factors were low while the availability of conventional information sources was high.

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