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The Role of Treatment on the Productivity of Vegetable Farmers' Work

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Abstract

This study aimed to determine working productivity of vegetable farmers and to find out the relationship between the agricultural extension and working productivity of vegetable farmers in Kumpeh Ulu District, Muaro Jambi Regency. The high and low working productivity of vegetable farmers is influenced by the amount of production produced by farmers and the amount of revenue received by farmers. By involving 44 vegetable farmers incorporated in vegetable farmer groups and by employing an analysis method with the frequency distribution table, the results of this study indicated that there was a significant relationship between the agricultural extension and working productivity of vegetable farmers. More specifically, the finding showed that the more often farmers had the agricultural extension activities, the more the farmers would be increasingly encouraged to increase productivity.

Keywords: Extension; Extension Systems; Farmers; Working Productivity

1. Introduction

According to the Law Number 16 in 2006 concerning agricultural, fisheries and forestry, and extension systems (the Ministry of Law and Human Rights, 2006), agricultural extension is a learning process for key actors that are willing and able to help and organize themselves in accessing market information, technology, capital, and other resources in an effort to increase productivity, business efficiency, income, and welfare, and to increase awareness in conservation environmental functions.

Agricultural extension is a system of education outside the school (non-formal) given to farmers and their families to change their behavior to farm better, to live more prosperous (better living) (Hernanto, 1995) and to socialize more better community and safeguarding the environment (better environment). The data showed that Kumpeh Ulu District in Muaro Jambi Regency, has 18 villages, which have one extension worker in each village, and several agricultural extension agents hold two villages at a time. The benefit of the existence of

agricultural extension agents in the village is to be able to develop the potential of the village area and provide empowerment to farmers in need.

Furthermore, one of the skills improvement of the workforce (farmers) can be obtained from the presence of an agricultural instructor. This is in line with the understanding of agricultural extension. Agricultural extension is a process of behavior change (knowledge, attitudes, skills) among farmers, so that they know, want and are able to carry out changes in their farming in order to increase production, income and improve family welfare to be achieved through agricultural development.

By looking at the increase in productivity that can only be carried out by human resources to increase work and skills in cultivating their farms, as well as improving the work skills of a farmer, one can get from the existence of agricultural extension workers (Samsudin, 1997). Besides, farming vegetables has bright prospects for farmers in Kumpeh Ulu Districts if they are cultivated intensively. This commodity is also quite in demand in the market and has high economic value and fast capital turnover. This is closely related to the age of plants for short production and market demand that never stops because every day people need vegetables for consumption, the authors interested in doing research

In brief, this research was carried out in Muaro Jambi Regency by involving vegetable farmers, and employing descriptive analysis method with frequency distribution table with the aim to recognize the working productivity of vegetable farmers and the relationship of agricultural extension agents to the working productivity of vegetable farmers. Hopefully, there is a very significant relationship between extension workers and farmers to increase the productivity of farmers.

2. Literature Reviews

2.1. Why Agricultural Extension?

The common prevailing prices among vegetable farmers are still relatively in low and below market prices level, thus it affects the size of the farmers' income and productivity. Productivity is a comparison of a certain number of outputs with a certain number of inputs. Jambi Province has a very supportive potential place for conducting vegetable farming activities, one of places is Kumpeh Ulu District in Muaro Jambi Regency.

The majority of the population is livelihoods as vegetable farmers because they are supported by the condition of the land. There are eight types of vegetables planted such chili, cayenne pepper, tomatoes, eggplant, beans, cucumber, kangkong, spinach and beans (Central Agency of Statistics, 2016; Rukmana, 1994). The achievement of satisfactory levels of farmer production can be caused by farmers' efforts to integrate production factors (land, labor, capital and technology) with their skills acquired after meeting with agricultural extension agents. Generally, extension workers are placed in one village area for a period of one year with several programs to prosper farmers in Muaro Jambi Regency with approximately 18 extension workers. According to Law No. 16 of 2006, agricultural extension is a learning process for the main actors called farmers in order to be able to improve their skills and to help and organize themselves in accessing market information (Van den Ban & Hawkins, 1999).

2.2 Agricultural Extension

The main target of agricultural extension workers is to be directly involved in farming activities and farming management (farmers and families). The method used in conducting the

treatment is to educate, guide and apply in changing the farmers' understanding, attitudes and behavior (Kartasapoetra, 1987; Siagian, 1989). There are several extension methods involved such as extension method and communication processes, extension method in formal education, and extension methods in adult education. Furthermore, extension activities are needed in development because they can carry out their functions properly to provide maximum results on their work productivity, these activities are influenced by agricultural extension agents and others (Mahendi, 2013).

2.3 Working Productivity of Vegetable Farmers

Vegetables are one of the growing horticultural products consisting of lowland and highland vegetables. Based on the form consumed, vegetables are leaves, flowers, tubers and bamboo shoots and vegetables based on the growing habits of annual vegetables. Farming vegetable needs to get attention in the farm so that the production can be achieved (Soeharjo & Patong, 1973; Soekartawi, 1988; Surtiyah, 2006). Also, increased productivity in general is a comparative measure between output and input, if productivity rises it will be possible to increase efficiency and work system (Sinungan, 2014).

The International Labor Organization (ILO) (2018) reveals that more simply the meaning of productivity is a computational comparison between the amount produced and the number of each source used during production. According to Sugiyono (2015), labor productivity or often called as labor efficiency can be measured by taking into account, the amount of production, revenue per working day and land area.

In addition, there are two different types of comparison levels, total productivity and partial productivity (Mubyarto, 1987). Based on the analysis, it can be inferred that productivity is a comparison between outputs and inputs and expresses how to use well the sources of producing goods or services. The same amount of production can be obtained by using fewer resources, with assumptions in conducting farming activities farmers can get the same amount of production by using fewer resources such as capital, labor, expertise, raw materials (Department of Agriculture, 2009).

3. Methods

This study used a descriptive analysis method with the frequency distribution table to determine the relationship between extension agents and productivity (Nazir, 2011; Riduwan, 2009). Non parametric statistical analysis (Siegel, 2011) through Chi Square (X^2) test was used to test the comparative hypothesis of two samples in form of a nominal and a large sample. Variable measurement scale in this study used Likert scale with three levels of items used; agree, neutral, and disagree with the score scale of 1-3 (Creswell, 2012; Mukminin, Haryanto, Sutarno, Sari, Marzulina, Hadiyanto, & Habibi, 2018). According to Mardikanto (1991), there are three ways in determining the selection of extension methods based on the media used, the nature of the relationship between extension targets and the psychosocial approach associated with the adoption stages.

Moreover, the high and low working productivity of vegetable farmers is influenced by the amount of production produced by farmers and the size of farmers' income. In analyzing the data, descriptive analysis method by using frequency distributive table (Creswell, 2012; Johnson & Christensen, 2008; Syaiful, Mukminin, Masbirototni, Aina, Habibi, Sari, Harja, & Triana, 2018) was used to determine the productivity of vegetable farmers' performance by involving 44 vegetable farmers incorporated in vegetable farmer groups in three villages in Kumpeh Ulu

district (covering vegetable production, land area, production prices and farming revenues) and field extension officers assigned to the area who were ready to assist in the research, then the Chi Square test was conducted to determine the relationship between the extension agent and working productivity of the farmer. In this study, the terms of agricultural extension means a process of behavioral change including knowledge of attitudes and skills that plays a role in farmers to enhance changes (Central Agency of Statistics, 2016).

4. Results

Kumpeh Ulu is one of districts in Muaro Jambi Regency with a tropical climate, about 81% of the land area is non-paddy land consisting of gardens, landing and plantation areas. The population in the research village at the time of study was 13,912 people in agricultural sector named horticultural crops (Central Agency of Statistics, 2017).

In this study, the level of farmers' education was measured based on the level of formal education they had passed. Most farmers only graduated from elementary school number of 39% or as 17 farmers. The implementation of extension in the field will affect the creation of farmers' awareness and changes in the attitudes, behavior and skills of farmers. The continuous extension is supported by the ability to communicate with agricultural extension workers. Further, they are the front line of agriculture in the process of agricultural extension. Extension agents play a very large role in the provision of new technology to farmers and changes in knowledge, attitudes and skills in managing farming, and hopefully they are expected to increase production and farm income managed by farmers.

From eight elements influenced agricultural extension such agricultural extension agents, extension targets, extension methods, extension media, extension materials, extension time, and extension sites, the agricultural extension agents are intended as extension workers from the governmental and private institutions. The implementation of extension in the field will affect the creation of farmers' awareness and changes in the attitudes, behavior and skills of farmers. The continuous extension of educational activities supported by the ability of agricultural extension workers to communicate will be able to generate farmers' interest and desire to pay attention to the material. Based on the results of the study, there was an indication of the relationship between the agricultural extension and working productivity of vegetable farmers in the study area as shown in the following table.

Table 1. Agricultural extension and working productivity of vegetable farmers in 2016

Agricultural Extension	Working productivity		Amount
	Low(< Average)	high(>overall)	
low (<overall)	18	3	21
high (>overall)	7	16	23
amount	25	19	44

Based on the table above, the researchers can infer that there was a tendency of the relationship between extension activities carried out with working productivity of vegetable farmers. Of the twenty one farmers stated that agricultural extension activities were in low level, there were 18 farmers having low level of working productivity and 3 farmers having high level

of working productivity. Furthermore, of the twenty-three farmers as respondents stated that agricultural extension activities were in high level, there were 7 farmers having low labor productivity and 16 farmers having high level of working productivity.

Meanwhile, according to statistical tests (chi-square test), the results obtained χ^2 counted as 13.71 and χ^2 value was 3.84. The decision was to reject H_0 and accept H_1 which meant there was a real relationship between agricultural extension workers and the productivity of vegetable farmers in Kumpeh Ulu district in Muaro Jambi Regency. Moreover, Cramer's value obtained was 0.4795 and Cramer's value was 0.707 which meant the degree of tendency in increasing labor productivity of vegetable farmers due to following agricultural extension was 47.95%, and conversely the degree of tendency of low productivity of farmer labor as a result of not following agricultural extension was 47.95%. The closeness value of the relationship (r) was equal to 0.6783 which meant there was a degree of relationship between following agricultural extension and the labor productivity of vegetable farmers by 67.83%. This value was 5.98 and $t_{tab} (\alpha = 5\% \text{ db} = 44) = 3.841$ then rejected H_0 which meant there was a real degree of relationship between agricultural extension and labor productivity of vegetable farmers by 95% confidence level.

To conclude, those results indicated that working productivity of vegetable farmers in research locations was still relatively in low level as 43%. The high and low productivity of vegetable farmers was influenced by the amount of production produced by farmers and the amount of income received by farmers. The acceptance is the production multiplied by price. Often, the prices that apply among vegetable farmers are still relatively in low level and below market prices. Low prices will certainly affect the size of the income and productivity of the farmer's work. In addition, there was a real relationship between agricultural extension and working productivity of vegetable farmers in the Kumpeh Ulu sub-district of Muaro Jambi Regency as 67.83%. This reported that the more often farmers get agricultural extension activities, the farmers will be increasingly encouraged to increase their working productivity. Statistically in this study, there was a significant relationship between agricultural extension activities employed by agricultural extension workers and vegetable farmer working productivity and this has implications for both parties.

Besides, agricultural extension workers, especially the agriculture and forestry extension counseling center (in Indonesia, BP3K) in Ulu Agara, further increased in terms of the quantity and quality of the extension activities provided like training, encouragement, and motivational activities for farmers in the study area. An extension activity is a form of business from the relevant government agencies in disseminating information regarding innovations and new technologies in order to increase farm productivity and income, so that the welfare of farmers can increase (Aulia, 2010; Irnanda, 2015; Maharani, 2015; Mosher, 1991; Pradipta, 2011). Therefore, the existence of extension can provide extensive knowledge for the farmers as the respondents, then discussions carried out in the field can also explore the ability of respondents and can facilitate respondents to solve the farming problems that they face.

5. Implications for Agricultural Education

To improve the productivity and welfare of farmers, the government and farmer groups should develop the potential of agricultural extension workers. In this case, the government needs to review the capability of field agriculture extension (FAE) performance in conducting agricultural extension activities. Additionally, the government should improve the skills and abilities of instructors by providing training or seminars to agricultural extension workers.

Finally, farmers or farmer groups should routinely follow or take time in extension activities held regularly so that their knowledge and skills that can increase and have an impact on working productivity.

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