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Utilization of Information and Corn Productivity in Kedaung Village, Sragi District, South Lampung Regency

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Abstract. In general, farmers need various kinds of information related to their farming business. This study aims to analyze the relationship between the use of information by farmers with corn productivity. This research was conducted in Kedaung Village, Sragi District, South Lampung Regency. The number of samples in this study were 40 corn farmers who were selected by purposive sampling from 402 corn farmers. This study used a survey method and the data were analyzed using descriptive analysis and Rank Spearman test. The results of this study indicate that there was a fairly strong relationship between the type of information and corn productivity, while the media of information and the sources of information were not correlated with corn productivity. This is because the farmers are still hesitant to apply the information obtained from the media of information and the lack of participation in extension activities.

INTRODUCTION

Corn (*Zea mays*) is one of the most important food crops in the world after rice and wheat. Corn is the staple food after rice in Indonesia. In addition, corn has an important meaning in industrial development because it can be used as a raw material for the food industry, animal feed, and food processing in Indonesia which ultimately causes the demand for corn to also increase [1].

The [2] stated that in 2020 Lampung Province was categorized as the third-largest corn-producing area in Indonesia which produced 2.83 million tons of corn from a harvested area of 474.9 thousand hectares. In 2015, South Lampung Regency was the largest corn production centre in Lampung Province. This can be seen from its contribution in meeting the needs of Lampung Province by 37.5%. or as much as 563.72 thousand tons of dry shells [3].

[4] stated that corn production and harvested area in South Lampung increased from 2016 to 2017 by 598,032 tons (115,388 ha) to 690,785 tons (128,034 ha), but decreased in 2018 to 510,936 tons (91,977.7 ha). One of the factors that affect the low productivity is the capacity of farmers. This is related to the low level of education of farmers. The low level of farmer education can make farmers slow to adopt new innovations and tend to maintain conventional equipment so that it is less effective [5]. The level of education of farmers can affect the knowledge they have, and access to information is one way to increase their knowledge. Thus, it can be interpreted that someone who has adequate information will affect his level of knowledge.

Dewi [6] states that access to information has an important role for farmers, namely as a provider of information needed by farmers for the progress of their farming business. Increasing access to information for farmers can improve the ability of farmers to manage their farming business because farmers can access the developments of technology in accordance with the conditions of their farming business. The access of information includes information on farming capital, consumer needs, quantity and quality of harvests, and selling prices. If farmers can optimally meet the needs of production inputs, then they can increase the productivity of their farming. Based on the explanation above, the purpose of this study is to analyze the relationship between the use of information by farmers and the productivity of corn farming.

METHODS

In this study, there are two kinds of variables, namely the dependent variable (dependent variable) and independent variable (independent variable). The dependent variable in this study is corn productivity (Y). While the independent variables in this study are the type of information (X1), media of information (X2), sources of information (X3).

This research was conducted using a survey method in Kedaung Village, Sragi District, South Lampung Regency. The determination of the number of samples is in accordance with [7] theory which states that if the population is large, the number of samples can be taken between 10-15% or 20-25% or more. The population in this study was 402 corn farmers in Kedaung Village, so the number of corn farmers can be calculated using the sample size formula according to Gay and Diehl (1992) in [7] as follows:

$$n = 0,1 \times N \quad (1)$$

Notes:

n = Number of samples

N = Total population

Based on equation 1, the calculation of the number of samples for corn farmers is as follows:

$$n = 0,1 \times 402 = 40,2 \approx 40$$

Determination of the sample in this study using purposive sampling technique with the consideration that the sample population does not have the same behavior in using information. Researchers selected samples based on recommendations from agricultural extension workers in Kedaung Village. The selected farmers are farmers who participate in agricultural extension activities.

Farmers have two accesses in obtaining information, namely with information media and information sources. Information media is a tool used by farmers to obtain information. The information media that are usually used by farmers in the sample are radio, television, HP/PC with internet, newspapers, brochures and agricultural magazines. While the source of information is an intermediary used by farmers in obtaining information. In this case, the intermediaries are other farmers, farmer groups, friends or relatives, middlemen, agricultural extension workers and certain agencies. Types of information obtained by farmers include varieties of corn, types of corn fertilizers, use of fertilizers, use of medicines, planting methods, maintenance methods, harvest time and corn prices. The type of data used is primary data. The primary data collection method was obtained through direct interviews with farmer respondents using a questionnaire.

Researchers did not test the validity of the questionnaire in this study. Researchers used a questionnaire used in [8]. Researchers used the Spearman Rank correlation test to determine the relationship between the use of information by farmers and corn crop productivity. Spearman's Rank test is a non-parametric test that does not require many assumptions to be fulfilled, for example, the analyzed data does not have to be normally distributed [9].

RESULT AND DISCUSSIONS

Characteristics of Respondents

The respondents in this study are farmers who cultivate corn in Kedaung Village in 2021. According to [10], the population aged 15 to 64 years is included in the productive age. Formal education of farmers starts from elementary school to diploma three. The majority of farmers' formal education is elementary school graduates. The average area of land cultivated by farmers is 1.3 ha. This land is included in the narrow land classification. The average number of corn plants owned by respondents was 76,425 and the average age of corn plants was 54 days. On average, respondents have been cultivating corn for 10.5 years.

Utilization of Corn Cultivation Information

Variables from the use of information include the type of information found by farmers, the media used by farmers, and sources of information for farmers. Based on the results of the interviews, it was found that the types of information obtained by farmers were corn varieties, types of corn fertilizers, use of corn fertilizers, use of corn

medicine, corn planting methods, corn maintenance methods, harvest time, and the selling price of corn. Figure 1 shows the percentage of types of information from interviews with farmers.

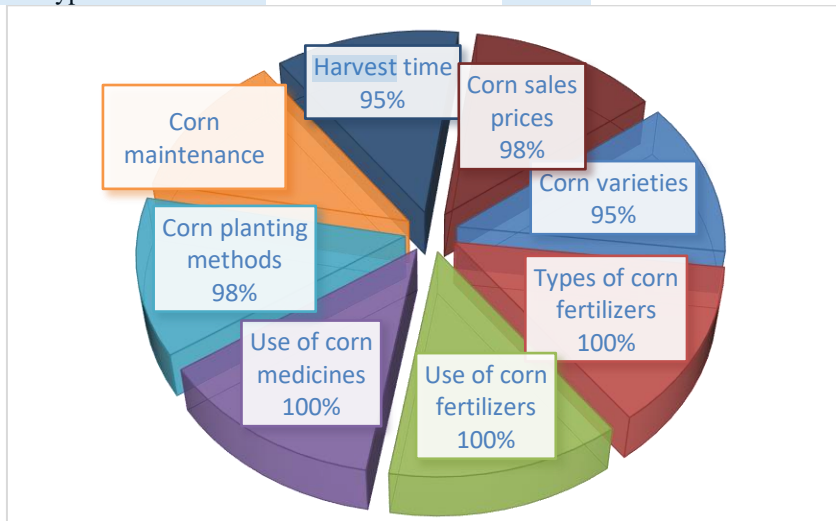


FIGURE 1. Types of agricultural information found by farmers

Based on Figure 1, the most information found by farmers is information about the types of corn fertilizers, the use of corn fertilizers and the use of corn medicines. Meanwhile, other types of information were not found fully by farmers because they could not attend group meetings and also had limitations in using their HP/PC on the internet so they did not get information.

Farmers can obtain information about corn productivity in two ways, namely information media and information sources. The results showed that the media used by farmers to obtain information about corn cultivation were cellphones/PCs with the internet and brochures. Figure 2 shows the percentage of information media utilization.

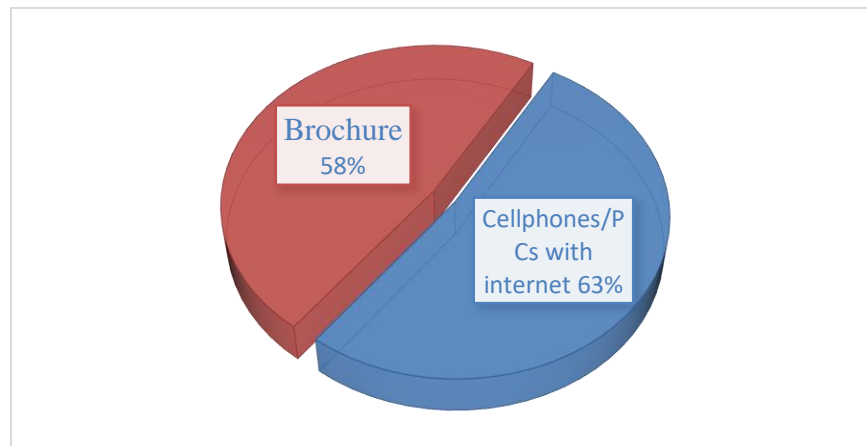


FIGURE 2. Information media used by farmers

Based on the results of the interviews, it was found that most of the farmers have used HP/PC internet to browse the internet and some have used brochures to find information about the types of corn fertilizers, the use of corn fertilizers and the use of corn medicines. Respondent farmers do not read agricultural newspapers and magazines to find information about corn cultivation. Farmers also do not use television to find information about corn cultivation, most of them watch television only for entertainment.

Furthermore, farmers can obtain information through other people. Basically, some farmers admit that they are happier and feel that more information is obtained from people who meet and communicate directly rather than seeking information through the media. This is in line with the research by [11], that most of the taro farmers who

are members of the Saluyu farmer group are mostly old farmers (72.7%) and do not have devices to access the internet. Most of them also prefer to obtain information directly rather than using media (such as the internet), because they think it is cheaper and more reliable. [12] state that farmers' perceptions of Information and Communication Technology (ICT), especially mobile phones are only limited to communicating due to limited knowledge and skills, farmers have not been able to use it to find the latest agricultural information and innovations.

The results of the interviews conducted showed that the sources of information for farmers related to corn farming consisted of extension workers, farmer groups, other farmers, friends or relatives, certain agencies, and middlemen. Figure 3 shows the percentage of sources of information regarding corn farming.

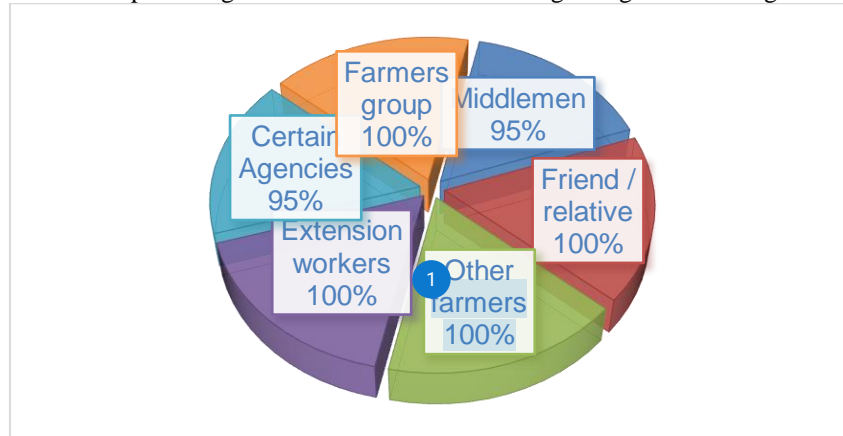


FIGURE 3. Sources of information on corn farming.

Figure 3 shows that most of the farmers have obtained information through extension agents, other farmers, friends or relatives, farmer groups, and middlemen as sources of information related to corn farming. This is because farmers get all kinds of information through extension activities which are attended by farmers once a month. The agencies that have visited this village are formulators who promote fertilizers or pesticides from certain companies.

Corn Productivity

The smallest farmer's land area is 0.25 ha and the widest is 2.00 ha. The results showed that the overall productivity of corn farming can be seen in Table 1.

TABLE 1. Distribution of respondent farmers based on corn productivity per ton/ha

Classification	Productivity (ton/ha)	Frequency (Σ)	Percentage (%)
Low	5,0 – 6,6	17	43%
Middle	6,7 -7,3	16	40%
High	7,4 – 8,0	7	18%
		40	100%

Source: Primary data of research results

Table 1 shows that corn production is mostly in the low classification (43%). The Agricultural Extension and [13] states that corn productivity can reach 10-12 tons/ha. However, the average of corn productivity in Kedaung Village is only 6.7 tons/ha, so this shows that the corn productivity is not yet maximized. [14] stated that one of the factors for the decrease in corn production both in terms of quality and quantity could occur due to poor harvest and post-harvest handling. Most corn farmers have understood the importance of harvesting and post-harvesting to produce quality corn production. However, not all farmers apply their knowledge even though the Ministry of Agriculture has discovered and applied technology for harvest and post-harvest activities. This is due to the habits of farmers who use conventional methods and do not apply the knowledge that has been obtained from the ministry of agriculture.

Based on the results of direct interviews with the farmers in this study, other causes of the decline in corn productivity can be caused by the low frequency of land checking, lack of handling weeds, and the lack of use of non-subsidized fertilizers by farmers.

Relationship of Information Utilization by Farmers with Corn Productivity

Based on research by [8] there is a relationship between the use of information and pepper production. Utilization of information that has a relationship with pepper production is the type of information and information media. Therefore, in this study the researcher wanted to see the relationship between the use of farmer information and corn productivity.

The hypothesis of this research is that there is a relationship between the use of information by farmers and the productivity of corn produced. Utilization of information consists of the types of information found by farmers, information media used by farmers, and sources of information used by farmers. Data analysis using the SPSS 20.0 application for Windows applications using the Spearman Rank Test (rs) at an alpha level of 0.05 can be seen in Table 2.

TABLE 2. Results of Analysis of the Relationship between Information Utilization by Farmers and Corn Productivity

Dependent Variable (Y)	Independent Variable (X)	Correlation Coefficient (r)	P-Value
Corn Productivity	Type of Information (X ₁)	0,347*	0,028
	Media of Information (X ₂)	-0,131	0,420
	Source of Information (X ₃)	0,223	0,167

Note: * Real at the level of 0,05

Table 2 shows that there is a relationship between the variable utilization of information by farmers and the variable corn productivity, namely the type of information found by farmers. Statistical test results show that the correlation coefficient is 0.347 with a significance of 0.028 which is smaller than alpha 0.05, so it can be concluded that there is a fairly strong relationship between the type of information and maize productivity. This is because the main job of farmers is corn farming and they are aware that the amount of information they get greatly affects productivity. So, farmers always try to get as much information as possible about corn farming from various sources so that their farming business can develop.

The results of statistical tests show a correlation coefficient of -0.131 with a significance of 0.420, so it can be concluded that there is no relationship between information media and corn productivity. Farmers are already actively seeking information through their cellphones/PCs with internet and brochures. However, they are still hesitant to apply the information obtained from the information media. This causes there is no relationship between information media and corn productivity.

Statistical test results show a correlation coefficient of 0.223 with a significance of 0.167 greater than alpha 0.05, so it can be concluded that there is no relationship between sources of information and corn productivity. The results of the interviews showed that it was true that all farmers used extension workers and farmer groups as sources of information obtained. However, farmers are not actively participating in extension activities and farmer group member activities which are held once a month to discuss corn cultivation, pest and disease control, and use of fertilizers.

CONCLUSIONS

The most information found by farmers was information about the types of corn fertilizers, the use of corn fertilizers and the use of corn medicines. Information media used by farmers to find information about corn cultivation, namely by using HP/PC with the internet and brochures. While the sources of information for corn farmers are extension workers, farmer groups, other farmers, friends or relatives, certain agencies, and middlemen. The average productivity of corn farmers is 6.7 tons/ha. There is a fairly strong relationship between the type of information and the productivity of maize, while the information media and sources of information are not related to the productivity of maize produced. This research is expected to be a reference for further researches, especially in

the field of information utilization for farmers and making farmers aware of the importance of using information in developing their farming.

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