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

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Abstract

Various kinds of information needed by farmers related to their farming such as seed varieties, cultivation methods, types and use of fertilizers, pesticide use, harvest time, and sale prices. This study aims to analyze the correlation between utilization of information by farmers and 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 that randomly selected. This research used a survey method and the data were analyzed using descriptive analysis and Rank Spearman test. The results of this research showed that there was a fairly strong relationship correlation between the types of information and corn productivity, while the media information and source of information were not correlated with corn productivity.

Keywords: Information, farmers, corn, productivity.

1. Introduction

Corn (*Zea mays*) is one of the most important food crops in the world after rice and wheat. Corn becomes the staple food after rice in Indonesia. In addition, corn has an important meaning in industrial development because it can be used as raw material for food and animal feed industry. The development of the food processing industry in Indonesia causes the need of corn increases too (Hasibuan et al., 2017).

The Department of Food Security, Food Crops, and Horticulture (2021) stated that Lampung Province was categorized as the third largest corn-producing area in January - December 2020 in Indonesia with a harvested area of 474,9 thousand hectares producing 2,83 million tons of corn. In 2015, South Lampung Regency was the largest corn production center in Lampung Province with a contribution to meet the needs of corn by 37,5% or as much as 563,72 thousand tons of dry shelled (BPS Lampung Province, 2016).

The Lampung Central Statistics Agency (2019) stated that corn production and harvested area in South Lampung increased in 2016 – 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 affects the low productivity is the capacity of the farmers. This is related to the low level of education of farmers. The education level of farmers can affect the knowledge they have, and access to information is one way to increase their knowledge. 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.

NOTES:

The author should mention the issues/gaps why the information access can increase the knowledge of how to cultivating the corns and increasing the productivity of corn based on the theoretical viewpoint or the previous research results so that the problems and purpose of this research can be identified and supported clearly. Also, the novelty research can be showed.

2. Methods

This research was conducted using a survey method in Kedaung Village, Srangi District, South Lampung Regency. The determination of the number of samples is in accordance with Arikunto's (2013) 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 from 12 farmer groups in Kedaung Village, so the number of corn farmers could be calculated using the sample size formula according to Gay and Diehl (1992) in Arikunto (2013) as follows:

$$n = 0.1 \times N \dots\dots\dots (1)$$

Notes:

- n = Number of samples
- N = Number of populations

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

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

The sample from each population of farmer group members is determined by using the sample proportion allocation formula, Nazir (1988):

$$n_i = \frac{N_i}{N} n \dots\dots\dots (2)$$

Notes:

- n_i = Number of samples for each group
- N_i = Total population of each group
- N = Total group population
- n = Total number of samples

Determination of the sample using a simple random table so that each unit of the population sample has an equal chance to be selected as a sample. The types of data used are primary data and secondary data. The primary data collection method was obtained through direct interviews with farmer respondents using a questionnaire. Secondary data is obtained from related agencies such as the Central Statistics Agency; Department of Food Security, Food Crops, and Horticulture; journal; and other scientific publications relevant to the research. To determine the relationship between the use of information that used by farmers with the corn productivity used the Spearman rank correlation test (rs).

Notes:

Please mention what kinds of information that the farmers have used

Do the 402 farmers have the same behavior to use the information, and by what kinds of information media they used. Therefore, what did the sampling technique use to show it is random or not random sampling?.

If random sampling, does this research implement simple or stratified?.

The authors should mention the indicators measurement of the variable (utilization of Information, and productivity), and also the measurement scale in this research.

3. Results and Discussion

Characteristics of Respondents

The age of the respondents ranged from 31 – 65 years, with an average age of 44 years. According to Mantra (2004), the population aged 15 – 64 years is included in the productive age. Formal education of farmers starting from elementary school – diploma three. The majority of farmers' formal education is elementary school graduates. The average area of land cultivated by farmers is 1,3 ha and it is included in the narrow land classification. The average number of corn plants owned by respondents was 76.425 plants and the average age of corn plants was 54 days. On average, the respondent farmers have been cultivating corn for 10,5 years.

NOTES;

The authors should mention the profile of information types that the farmers received and what are the media of information used WHETHER THE FARMERS USED THE TYPES, MEDIA AND SOURCES OF MEDIA BY THEM SELF IN THE METHODOLOGY SECTION ABOVE.

Utilization of Corn Cultivation Information

Respondents in this study are farmers who cultivate corn in Kedaung Village in 2021. The variables of information utilization include the type of information found by farmers, the media used by farmers, and sources of information for farmers in the past year. Types of information about corn farming found by farmers, namely corn varieties, types of corn fertilizers, use of corn fertilizers, use of corn medicines, corn planting methods, corn maintenance methods, harvest time, and corn sales prices. Figure 1 shows the percentage of types of information found by farmers.

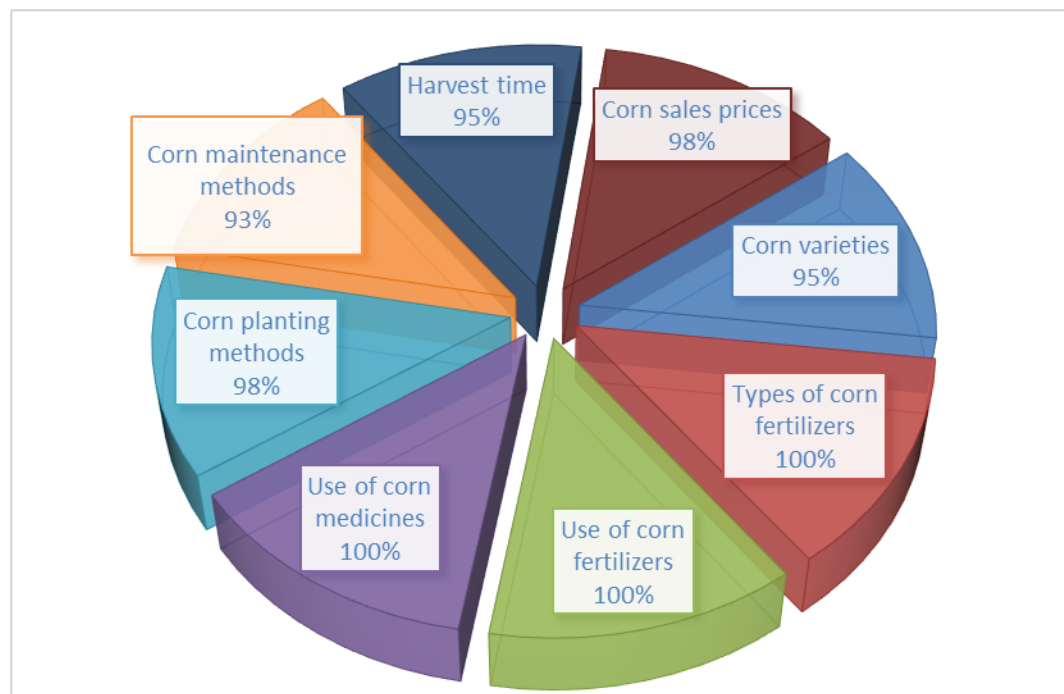


Figure 1. Types of agricultural information found by farmers

Based on Figure 1, the most information found by farmers is information on the type of corn fertilizer, the use of corn fertilizer and the use of corn medicines. Meanwhile, other types of information were not completely found by farmers because they were unable to attend group meetings so they did not get the information.

The results showed that the media used by farmers to obtain information about corn cultivation were cellphones/PCs with internet and brochures. Figure 2 shows the percentage of information media utilization.

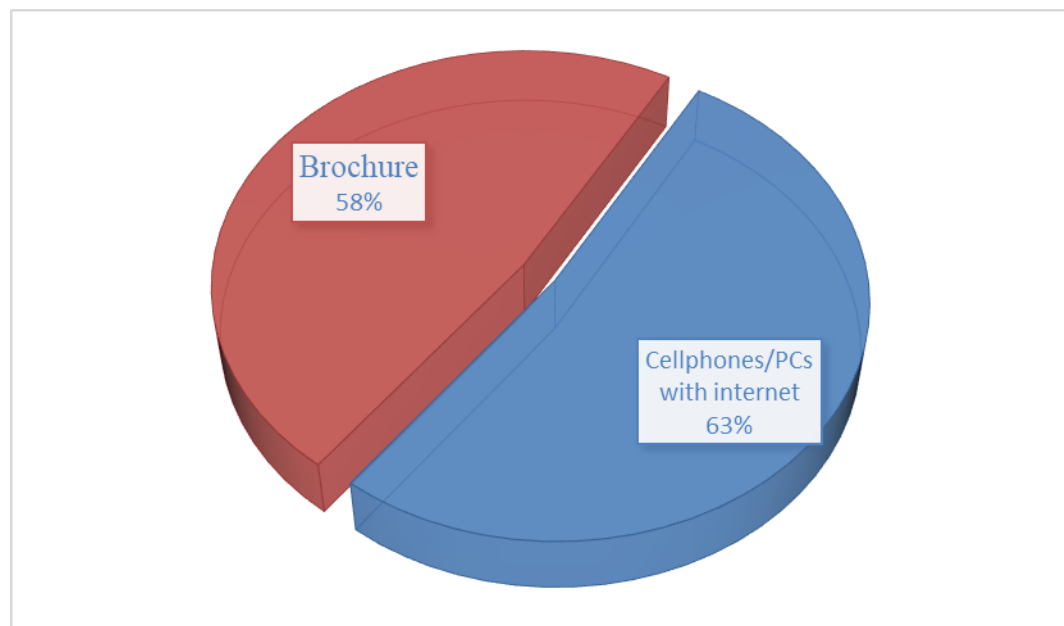


Figure 2. Information media used by farmers.

Most of the farmers have used mobile phones to surf the internet and some have used brochures to find information about corn cultivation. Generally, respondent farmers rarely read print media (such as newspapers or agricultural magazines) to look for information about corn farming. Farmers also do not use television to find information about corn cultivation, most of them watch TV for entertainment.

Farmers admit that they are happier and feel 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 of Syaumi and Purnaningsih (2020), 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. Sumaryo and Rangga (2018) state that farmers' perceptions of ICT, especially mobile phones are only limited to communicating due to limited knowledge and skills, farmers have not been able to use it to search for information and the latest agricultural innovations.

The results 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.

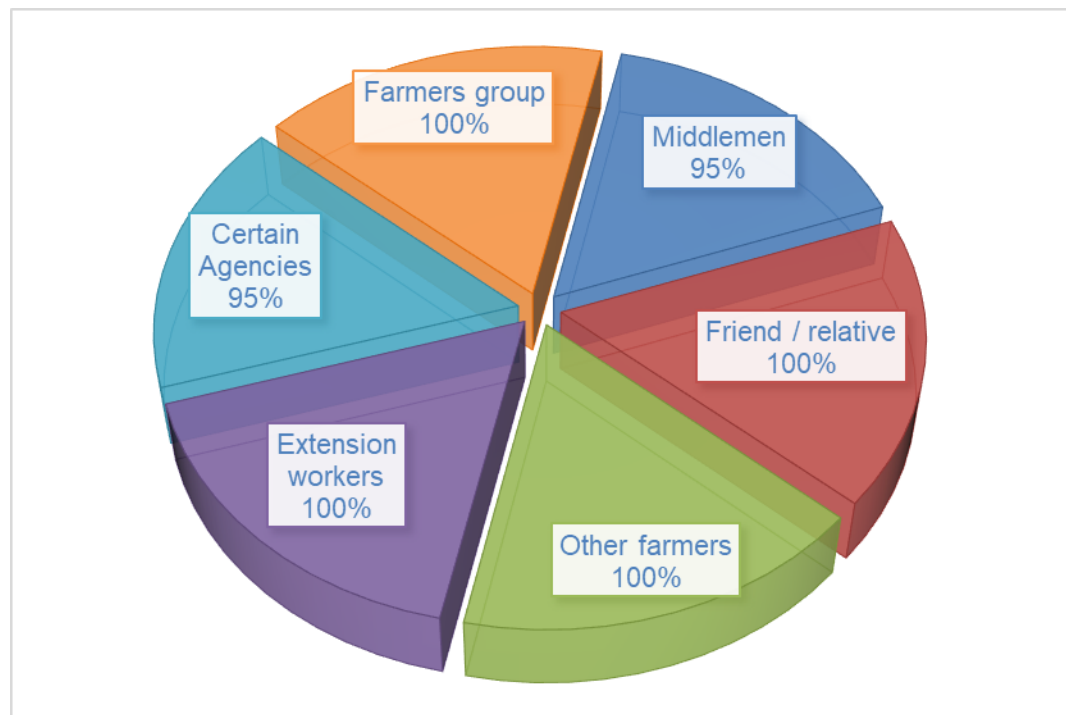


Figure 3. Sources of information on corn farming.

Figure 3 shows that most of all farmers use extension workers, other farmers, friends or relatives, farmer groups, and middlemen as sources of information related to corn farming. The role of extension workers and farmer groups is the main source of information for farmers to obtain all types of information through extension activities that are attended by farmers once a month. Agencies that have visited this research 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 (tonnes/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 Human Resources Development

Agency of the Agricultural Training Center (2015) states that maize productivity can reach 10 – 12 tons/ha. However, the productivity of corn in Kedaung Village is only 6,7 tons/ha, so this shows that the productivity of corn is not maximized yet. Darwis (2018) stated that the decrease of corn production both in terms of quality and quantity could occur due to poor harvest and post-harvest handling. Most of 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 harvesting and post-harvest activities.

Relationship of Information Utilization by Farmers with Corn Productivity

The hypothesis of this study is that there is a relationship between the use of information by farmers and the productivity of corn produced. Utilization of information consists of types of information found by farmers, information media used by farmers, and sources of information used by farmers. The results of data processing using SPSS 20.0 for Windows applications using the Spearman 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	Information Type (X1)	0,347*	0,028
	Information Media (X2)	-0,131	0,420
	Information Source (X3)	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. The results of statistical tests 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 obtained greatly affects the productivity achieved. Thus, farmers always try to get as much information about corn farming as possible from various sources so that their farming can grow.

The results of statistical tests shows that the correlation coefficient is – 0,131 with a significance of 0,420, so it can be concluded that there is no relationship between information media and corn production. This is in accordance with the reality on the ground that farmers only use two media to find information about their farming, namely through mobile phones, internet and brochures. Most farmers prefer to exchange information directly with extension workers and other farmers, either in their homes, on land, or at farmer group meeting locations.

Statistical test results show that the correlation coefficient is 0,223 with a significance of 0,167 greater than alpha 0,05, so it can be concluded that H0 is accepted. There is no relationship between the source of information and corn productivity, this is due to the grouping of data on the information source variable. The results of the research in the field indicate that all farmers use extension workers and farmer groups as sources of information obtained. This is because there are extension activities where they will meet with extension workers and other members of farmer groups once a month to discuss corn cultivation, pest and disease management, and the use of fertilizers.

NOTES:

The author should mention the measurement scale and indicators of the variables. It seems due to the scale and indicators of measurement and normality data, so that there are no relationship

between the sources and media of information with productivity of corn.

4. Conclusions

All information about corn farming has been obtained by corn farmers. As many as **63% of corn farmers use the internet and 58% of farmers use brochures to find information about corn farming.** 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 corn productivity, while the information media and sources of information are not related to the productivity of corn produced.

NOTES:

It is better for the authors to mention the implication of this research as the contributions in terms of theoretical and practical viewpoint.

Acknowledgement

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