

Motivation of farmers to cultivate organic rice in central java

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Abstract. The consumer's need for organic agricultural products increases sharply along with awareness of health, lifestyle and environmental concern. This research was intended to determine the relationship between social factors and the motivation of farmers for cultivating organic rice in Central Java. The research has been done by survey to farmers groups at three regions i.e. Semarang, Sragen and Demak. The determination of the location was carried out by means of purposive i.e. farmer groups that conduct organic rice cultivation (not semi organic). The determination of the sample was conducted purposively for a number of 50 people each regencies. Data were analyzed descriptive analysis and rank Spearman correlation analysis. The results showed that social factors include age, cultivated area, education, farming experience have correlation with motivation. education and cultivated area of land has a fairly close relation with correlation value 0,463% and 0,242%. Based on the motivation level, 33% of farmers have high motivation, motivation of farmers varied but most of them, 54% of total farmers stated that the motivation to cultivate organic rice is the quality of organic rice products and high income.

Keywords: Motivation, social factor, farmer, cultivate organic rice

1. Introduction

Indonesia is an agrarian country and agricultural development is a top priority in regional economic development. Indonesia has a great opportunity to become a world organic food producer. Indonesia has tropical agricultural land with diverse commodity, and the availability of abundant organic material [5] [14]. The development of organic agriculture in Indonesia began in the early 1980s marked by increasing organic agricultural land, and the number of organic producers. Organic farming is a healthy farming system by avoiding chemical fertilizers and chemical pesticides to avoid soil and water contamination and agricultural production in particular. [7] Moreover, organic farming also keeps the balance of ecosystems and natural resources directly involved in the production process. People are beginning to realize the importance of food quality, not just food in terms of quantity.

Public awareness has become a great opportunity for the development of organic farming. The main areas of organic rice producers in Indonesia are Central Java, East Java, West Java, and Yogyakarta. Rice is one of the agricultural commodities that become the basic needs of people in Indonesia, especially in Java. Central Java province has an important role because until now the



province of Central Java is still a province of national food buffer. Organic farming has benefits in improving soil fertility, preventing soil erosion by wind and water, improving infiltration and soil retention capacity, reducing surface and ground water consumption and continuous soil salinization, and reducing water contamination surface and ground water [3]. The selling price of organic agricultural products is higher compared to conventional agricultural products besides the lower production cost of organic farming, so farmers get more profit.[8]. Some advantages of organically cultivating rice are consumer health; the use of organic fertilizers that restore soil fertility and environmental sustainability; and increasing farmer's income, because the selling price is higher than conventional rice [7]. Therefore, with the attractive price level, farmers will be moved and motivated to develop organic farming. The productivity and price of organic rice is higher than conventional rice.

Organic farming business in Indonesia still has a great opportunity. Indonesia has big population to be a great potential as a consumer of organic products. Although not all Indonesian can afford to buy organic agricultural products, because the price of organic agricultural products is usually quite expensive. Based on Indonesian Organic Agricultural Statistics showed the opportunity of product organic has started to be widely utilized, it proved there is an increase of organic farming land of Indonesia [1].

Organic rice has been cultivated by several farmer groups. The development of producers and organic commodities are caused by the influence of people's lifestyles consumers are attention to the importance of health and the environment. Although organic farming has many benefits but there are many farmers still cultivate conventional farming systems. The consideration in organic rice farming generally the initial productivity will decrease first before soil conditions become stable and fertile again. The stability process of each plant is different. For rice crops, production fell 3-4 times the growing season. However, ideally the land recovery period can be up to 2 years. After reaching the critical point of land recovery, rice productivity will increase, and may even surpass productivity over conventional rice. Based on the existing problems, this study aims to determine the variety and level of motivation of farmers in organic rice cultivation and to analyze social relationships include age, land area, education, farming experience, number of families with the motivation of farmers in the application of organic rice farming system.

2. Research methods

This research was conducted from May to June 2017 in Semarang, Sragen and Demak regencies. The sampling method used simple random sampling [9] [12]. Population in this research were 150 farmers who have cultivated organic rice. Research variables include age, land area, education, farming experience, and number of families and farmer motivation in the application of organic rice farming system. This research also describe diverse of farmers and the level of motivation. The type of research used descriptive analysis then the data was analyzed using rank spearman correlation analysis. The formula that can be used to calculate the correlation between two variables was as follows :

$$r_{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} \dots \dots \dots [15]$$

r is the correlation coefficient, X is a social factor, and Y is motivation

The hypothesis used is:

H0 = There is no real relationship between variables

H1 = There is a real relationship between variables

Basic decision-making test is as follows:

Accept Ho, if P value > 0,05; meaning there is no significant relationship between variables. Reject Ho, if P value < 0.05; meaning there is a significant relationship between variables.

3. Results and Discussion

Motivation is the set of forces that cause people to behave in certain ways. Farmers have chosen cultivate organic farming must be have a reason, some considerations may be related to social factors of farmers, i.e. age, land area, education, farming experience, number of families. The classification of respondents by age, education, and the number of families, land area, farming experience, can be seen in Table 1. Then diverse of motivation farmers can be seen in Table 2.

Table 1. Number and percentage of respondents based on several social characteristics

Categories	Information	Number of people	Percentage (%)
Age	<30	4	2,7
	31 – 40	29	19,3
	41 – 50	54	36
	51 – 60	41	27,3
	>60	22	14,7
Education	Elementary school (not graduated)	34	22,7
	Elementary school	54	36
	Junior high school	25	16,7
	Senior high school	26	17,3
	Bachelor degree	11	7,3
Number of Family	0-1	30	20
	2-3	86	57,3
	4-5	20	13,3
	5-6	10	6,7
	>6	4	2,7
Land area	<1000m ²	4	2,7
	1000-1499 m ²	10	6,7
	1500-1999 m ²	20	13,3
	2000-2499 m ²	86	57,3
	>2500 m ²	30	20
Farming experience	<5 years	21	14
	6-10 years	21	14
	11-15 years	14	9,3
	16-20 years	32	21,3
	>20years	62	41,3

Table 1 shows that, 36 % of farmers have 41-50 years old. Based on age criteria shows that organic rice farmers in Central Java are dominated by farmers with productive age. Farmers with productive age allows farmers to accept both science and technology. The ability to receive knowledge and technology expectations can be aligned with increasing awareness and motivation of farmers to be able to develop organic rice farming business.

36% of the respondents (54 farmers) have only primary school education. Based on education criteria can be seen that the farmer's education are still low. 62 farmers or 41.3% respondents have a long experience of farming (> 20 years). Farmers are a hereditary work of the family, many of whom learn farming from helping their parents. Some farmers get knowledge from learning by doing and rely on farming experience as a teacher in running an agricultural business. Farmers have higher income levels when cultivate organic rice than conventional rice farming. This is consistent with the opinion

that organic farming provides greater benefits and has a significant effect on farmer's income [2][11]. The results of previous research in several regions in Indonesia on organic rice showed farmers who cultivate organic rice have higher income than conventional rice [6] [4]. In Sragen Regency R/C ration for organic rice farming was 2.83 and for non-organic rice farming was 1.81 [8].

Farmers average have 2-3 people in the family (57.3%) or 86 respondents. Number families are family members who live in one house and rely on daily needs. Based on the land area, 86 farmers or 57.3% of respondents have own land about 2000-2499 m². This indicates that the land area owned by farmers are still large and it is enough to be able to produce food to meet the daily needs and can be sold to cooperatives or consumers.

Table 2. Percentage of motivation farmers to cultivate organic rice.

Categories	Frequency	Percentage
Quality of product	42	28
High income	39	26
Ease to cultivate	19	12.66667
Ease Access to Marketing	22	14.66667
Group support	19	12.66667
Government support	9	6
	150	100

Motivation of farmers are diverse. 42 farmers stated that the reason farmers choose to cultivate organic rice because the quality of organic rice products is better than conventional rice. Farmers also stated that organic rice taste better, *pulen* and not easily stale. In addition, organic rice is also healthier because it is free from chemical fertilizers and pesticides. Crops yields will self consumption by the farmers and will sold to distributor and customer. Motivation of Farmers to cultivate organic rice because the price of products is higher than conventional rice. It is expected that the income will also be higher than conventional rice. Organic farming give benefit to farmers. They get benefit from organic farming because it can increase revenue by 20-30% [8]. Farmers stated that the constraints experienced during the transition from conventional to organic rice due to adjustments of about 2-3 years, at which time production will decline slightly. After reaching the critical point of land recovery, rice productivity will increase, and productivity higher than conventional rice.

Organic rice cultivation is technically different from conventional rice. 19 farmers stated the reason for choose organic rice cultivation because of the ease of cultivation, organic rice does not use chemical fertilizers and chemical pesticides. Farmers do not need to buy fertilizer because organic fertilizer produced by farmers themselves. This can reduce production costs so farmers prefer organic rice. The benefits of organic rice cultivation include consumer health, the use of organic fertilizers that restore soil fertility, and environmental sustainability, and increase farmers' income because the selling price is higher than non-organic farming. Some research suggests that organic farming provides greater benefits and it has a significant effect on farmers income [2][11].

Based on organic rice marketing, farmers stated that they have no difficulty in access to market organic rice products, it can be seen Table 2. 14,67% of farmers stated there is convenience in marketing. There are many retailers to distribute farmers' products to consumers. The most organic product' consumers were found in Semarang regency.

Group support and government support were sufficient. Groups in Semarang and Kabupaten Demak are institutionally managed well than in Sragen. Many activities organized by the group to support the development of farming business, for example training or joint discussion and other activities. Government support is also perceived as a sufficient category, including counseling, participating in

food exhibitions and some similar activities. Group support and government support are important to developing the farmers [13].

Table 3. Percentage of respondents by level of motivation

Categories	Interval score	Frequency	Percentage
Very high	17-20	32	21,4
High	13-16	47	31,3
Medium	9-12	36	24
Lower	5-8	26	17,3
Very low	0-4	9	6
Total		150	100

Table 3 shows that 47 farmers (31.3%) have high motivation, and only 6% have very low motivation level. Motivation is seen as everything that inspires human actions including aspirations or intentions in behavior [10]. There were various levels of organic rice farmers motivation in Table 3. Motivation in carrying out organic farming is very diverse. Farmers were motivated to run organic farming because they already felt the benefits from financial factors and group support.

Table 4. Results of correlation between socio-economic factors with farmer motivation

No	Variabel	Korelasi	Signifikansi	Result
1	Age	-0,175 [*]	0.032	Have correlation
2	Land area	0,242 ^{**}	0.003	Have correlation
3	education	0,463 ^{**}	0,000	Have correlation
4	Farming experience	-0,187 [*]	0,022	Have correlation
5	Number of families' member	-0,072	0,380	No correlation

Table 4 is the result of the correlation analysis. Table 4 shows that age, education, farming experience, land area have correlation with farmer's motivation level for cultivating organic rice. However the level of the relationship were still weak. It can be seen from the correlation value. Number of families have no significant relationship, this means the number of family does not become the basis or the reason of farmers to cultivate organic rice.

4. Conclusion

Based on the results, it can be concluded that age, cultivated area, education, farming experience, have significant correlation with farmer's motivation. Education and cultivated area of land which has strongest relation. Based on the motivation level, 33% of farmers have high motivation, motivation of farmers varied. Most of the farmers stated that the motivation to cultivate organic rice are the quality of organic rice products and high income.

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