

The Entrepreneurial Behavior of Semi-Organic Rice Farmers in Bantul Regency

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Abstract— The success of semi-organic rice farming is mainly determined by the behavior of organic rice and the entrepreneurial behavior of the farmers in managing their farming. With a strong entrepreneurial behavior, semi-organic rice farmers are expected to increase the production of semi-organic rice farming more efficiently. This study aims to determine the entrepreneurial behavior of semi-organic rice farmers and the factors that influence it. The research was conducted in Bantul Regency. The sample was taken intentionally from 5 farmer groups of 19 semi-organic rice farmer groups in Bantul consisted of 123 farmers. The collected were then analyzed by way of descriptive and regression analysis y. It is revealed that semi-organic rice farmers in Bantul Regency have quite a strong entrepreneurial behavior. Motivation is known to be the most influential factor in the farmers' entrepreneurial behavior while courage in taking risks is the least influential one. Factors affecting entrepreneurial behavior are age, education level, experience, training, market orientation, a network of cooperation and government support. Strengthening the entrepreneurial behavior of the farmer can be done through farmer group by way of directing program of activity that motivates farmer to take the business opportunity, such as creating innovative mentoring activities related to organic rice farming.

Keywords— *Behavior, Entrepreneurship, Motivation, Semi-organic*

I. INTRODUCTION

Farmers as rice producers have an important role in meeting the rapid demands of the development of the rice market to meet quality standards in both the process and the product. Semi-organic rice is one of the main commodities in the development of organic agriculture. However, even though the vision of organic farming has long been introduced, until now semi-organic rice producers have not been able to meet the expected target of semi-organic rice production. This so because the main problem lies on the farmers as the resource potential who should make the best use of agricultural and natural resources during the production. It is obvious that all this time, farmers as the main actors who should creatively maximize their potential have not done so. As a matter of fact, the key factors of successful rice production are not only cultivation techniques, but also farmer's capability in terms of attitudes, knowledge, and actualized skills to carry out farming activities ranging from planting preparation to product marketing. Therefore the entrepreneurial behavior of being market-oriented is one of the factors that determine business success since it has a very

important role in improving perceptions, motivation and enthusiasm to achieve successful farming [1].

As a new approach to farming, entrepreneurial behavior covers some positive traits such as being independent, smart, competitive and creative in making strategic decisions [2]. An entrepreneur is an innovator who is able to turn opportunities into new ideas. They are independent thinkers who consider failure as a study material. They are creative and responsible in composing, processing and measuring risk [3]. The manager's personal aspects are measured by motivational background, ability, skills, in stages, which affect the decision making process, technical processes and ultimately affect agricultural outcomes, as measured by indicators of technical efficiency, allocative efficiency and economic efficiency [4]

Individual entrepreneurial aspects include the needs for achievement and personal traits. The previous study highlights the need to find the relationship between expertise, experience and learning behavior towards business performance [5]. The most dominant external factors affecting farmers' entrepreneurial behavior are individual characteristics [6]. Research on entrepreneurial behavior mostly uses the Structural Equation Model (SEM) analytical methods on tobacco farmers [6], also about the influence of entrepreneurship on agricultural performance in the SRI method of rice farming [7]. Some of these studies are only seen from the managerial aspect but have not included the entrepreneurial behavior factor. Therefore, this study aims to determine the strength of the entrepreneurial behavior of semi-organic rice farmers and the factors that influence it. It is expected that this study will become a primary reference for policy making for the development of semi-organic rice farming in the Bantul Regency local government

II. METHODS

Bantul Regency is selected as a research location because it is one of the districts with great potential to produce organic rice. The survey was conducted intentionally on 123 farmers in 5 farmer groups from 19 semi-organic rice farming groups. Indicators of the entrepreneurial behavior consist of motivation, innovation, and creativity, the courage to take risks and the courage to make decisions which were scored and summed behavior. Each indicator was measured by a 5-category Likert scale, i.e from strongly disagree to strongly agree. The criteria used to measure the strength of the entrepreneurial behavior of semi-organic rice farmers were based on average scores. Scores of 1 to 2.33 were classified as weak, scores of 2.34 to 3.67 behavior were classified as quite

strong and scores of 3.68 to 5 was classified as strong entrepreneurial behavior.

This study uses descriptive analysis to describe the entrepreneurial behavior. Meanwhile, the factors that influence the entrepreneurial behavior were analyzed using linear regression

$$Y^* = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_7 X_7$$

Y = Entrepreneurial behavior (score)

β_0 = Constants

$\beta_1 - \beta_7$ = Regression coefficient

X_1 = Age (year)

X_2 = Education (score)

X_3 = Experience (year)

X_4 = Training (score)

X_5 = Market operation (score)

X_6 = Cooperation network (score)

X_7 = Government support (score)

The variable of Y is the original data (score) for regression analysis; the variable has to be made normal by using the following formula:

$$Y^* = (Y - \bar{Y}) / (\text{Std dev } Y)$$

Information:

Y = The score of the actual entrepreneurial behavior

\bar{Y} = The score of the average entrepreneurial behavior

III. RESULTS AND DISCUSSION

The entrepreneurial behavior consists of motivation, innovation and creativity, courage to take risks and make decisions.

A. Motivation

Motivation is anything that inspires human action including strong aspirations or intentions in behavior. There are 2 factors that influence the motivation of semi-organic rice farming consisting of driving factors and pull factors. Table 1 shows that low income has the highest score among the 3 indicators of motivational driving factors and the highest score in the motivational indicator, even though the average score of the pull factor is higher than the driving factor. Low and unsatisfactory income plus the difficulty of finding other jobs both as a main and a side job have motivated farmers to consistently cultivate semi-organic rice or make agriculture as the main livelihood in the family. Farmers mainly seize the opportunity of cultivating semi-organic farming as a solution for the problem of having low income and the difficulty of finding jobs. Therefore, it is obvious that motivation to increase income level to support the need of the family is the main driving force.

Overall semi-organic rice farmers with strong entrepreneurial behavior have a higher motivation than farmers with weak entrepreneurial behavior. In addition, farmers with high motivation are included in those with strong entrepreneurial behavior. It is revealed that semi-organic rice farming has a strong appeal for farmers to remain consistent in working and managing rice farming as the main work. The success of this semi-organic rice farming is expected to inspire young farmers to preserve the agricultural sector and prevent the conversion of land to non-agriculture in order to support

the achievement of food security and national food self-sufficiency

Table 1. Motivation of Semi-Organic Rice Farmers in Bantul Regency

Indicator	Score	Average
Driving Factor		
Low Income	4.11	3.71
Less Satisfactory Income	3.88	
Difficulty Getting a Job	3.15	
Pull Factor		
Organic rice is great	4.01	3.78
Cheap organic rice farming costs	4.04	
Organic rice improves soil structure	3.88	
Organic rice production is high	3.52	
Higher organic rice price	3.59	
Higher organic rice price	3.62	
Average of Motivation Score		3.74

The results of the research on hybrid corn farmers reveal that the farmers have a high level of motivation. Corn farmers of early majority amounted to 62.25% and 65.25% for late majority corn farmers. The biggest motivation for farmers to apply hybrid corn varieties comes from themselves, both for the category of early majority and the late majority [8]. The motivational pull factor is seen from the farmer's assessment of how much their personal desire is to raise livestock and how much livestock business is felt to benefit [9]. The higher the scale value is given shows the stronger the farmer's motivation and the higher the farmer's desire to develop his business [10]. But the driving motivation in the study is the initial motivation that arises because of the impulse or coercion to do business, contributing negatively to psychological behavior. In other words, the lower the driving motivation (due to compulsion) the higher the need for achievement and having motivation from the farmer.

B. Innovation and creativi

The second entrepreneurial behavior is innovation and creativity, both of which are the basis for finding opportunities for success. Acting innovatively in entrepreneurship is expected to be able to create something new and different. There are 4 indicators in innovation and creativity, namely the introduction of new goods, the method of providing input sources, new cultivation methods and post-harvest methods. Table 2 shows the innovation and creativity of semi-organic rice farmers of 3.60 which is strong enough. Semi-organic rice farmers in Bantul Regency are farmers who want to innovate and develop ideas with creativity that is in line with farmers' ability to increase maximum semi-organic rice production.

The introduction method of new goods has the highest score in the indicator of variables of innovation and creativity. This shows that the farmers' desire to develop semi-organic rice farming is very high by introducing semi-organic rice which is considered as healthy, environmentally safe and economically beneficial.

In terms of the input source method indicators, one of the most important factors in the use of inputs for semi-organic rice farming is the use of organic fertilizer. Farmers' interest in using organic fertilizer has the highest score, meaning that according to farmers the use of organic fertilizer can increase

the production of semi-organic rice and affordable prices. Semi-organic rice farmers in Bantul Regency are members of farmer groups, most of whom make their own organic fertilizer by adding other organic materials which are then fermented in a few days. Farmers can get these organic fertilizers at a low price of between Rp300 to Rp1,000 per kilogram. However, there are also farmers who use organic fertilizer without any processing or directly from cow dung.

Table 2. The Innovation and Creativity of Semi-Organic Rice Farmers in Bantul Regency

Indicator	Score	Average
The Introduction of New Product Method		
Introduction of semi-organic rice	3.81	3.73
Introduction of healthy semi-organic rice	3.76	
Introduction of eco-friendly semi-organic rice	3.71	
Introduction of profitable semi-organic rice	3.64	
The Input Provider Source Methods		
Animo farmers using organic fertilizer	4.00	3.32
Making organic fertilizer independently	3.68	
Organic fertilizer is cheap fertilizer	3.90	
The use of organic pesticide	2.72	
Making organic pesticide independently	2.29	
The New Cultivation Methods		
Straw reversal after harvest	3.67	3.39
Measure soil pH	2.91	
Observe the planting distance	4.12	
Implement the system of <i>Tajarwo</i>	3.24	
Avoid slash system	3.71	
Post-Harvest Methods		
Rice grain dry independently	4.00	3.40
Keeping dry rice grain	3.06	
Committing hatchery independently	3.41	
Selling the product in packaging form	3.12	
The Average of Innovation and Creativity Score		3.46

Farmers who use organic pesticides are still few. Scores of the use of organic pesticides and organic pesticides made by themselves are still below 3, although overall the average score of the input source indicator method is 3.32. This fact is interrelated in that the low score is caused by the easy access to input supply sources. On the other hand, they use pesticides wisely only necessarily during the attack of plant pest or when the organisms have exceeded the economic threshold. An interesting finding from this indicator is that the low score is very supportive of the sustainability of semi-organic rice farming.

The third indicator is the new cultivation method, which is carried out to maintain soil fertility so that it can get maximum

production. The score of the new cultivation method indicator is strong except for the method of measuring soil pH. This method was actually adopted from the organic rice cultivation system model of SRI (system of rice intensification). The range of soil pH for organic rice farming ranges from 7. Increasing the soil pH is done by adding dolomite, but this method is still rarely done. Some farmers in one stretch have measured soil pH and the result of which become a reference for other farmers.

Farmers always pay attention to the planting distance in semi-organic rice cultivation as shown in table 2. In their view, semi-organic rice cultivation must consider the spacing because this is the easiest way to increase semi-organic rice production and to optimize production. Plant spacing used as a reference is still based on the widely practiced experience and habits. Planting spacing is related to the cropping system carried out by farmers. Ordinary planting systems which come up with irregular spacing since they never apply a fixed distance between rows and in the same rows are still widely practiced by farmers. Jajar Legowo planting system is one of the items in the new cultivation method. Jajar legowo has 2: 1 planting system or size of 20 x 10 x 40 cm, meaning that every 2 rows of plants are separated by a 40 cm wide aisle. The distance between rows is 20 cm and the distance in rows is 10 cm. Tajarwo is actually not a completely new cultivation technology, but this system requires good habituation for smallholder farmers and laborers who carry out planting activities. Tajarwo cultivation technology has several advantages, including making it easier for farmers to carry out maintenance (fertilizing, weeding and controlling OPT), in addition to more population so that the yield is also expected to be higher. In the research location, there are some farmers who have not implemented the Tajarwo system on the grounds because the Tajarwo planting system in addition to requiring a lot of seeds is difficult to conduct, making many planting workers uneager to use the system. Farmers are reluctant to implement these innovations because they are not in line with what is needed and are relatively complicated to work on [11]. Therefore, strong motivation is needed so that all farmers want to implement it. Overall, the score of the indicator of the new cultivation method is quite strong since it has reached a score greater than 3, meaning semi-organic rice farmers always try to follow new technology in an effort to increase organic rice production.

The fourth indicator of innovation and creativity is the post-harvest method. The aim of the method is to increase the added value of semi-organic rice. Table 2 illustrates that farmers dry their own grain, although this method requires different treatment than non-organic rice. The most important thing in this fourth indicator is that farmers have done their own hatchery and packaging. Farmers' courage to sell semi-organic rice in the form of packaging is basically an innovation that deserves an appreciation.

As the main actors who have the ability to innovate and to be creative, farmers still need to maximize their potential to carry out their farming business which ranges from the planting preparation to product marketing. Table 2 indicates that farmers' innovation and creativity as good enough. This reinforces the results of the previous studies delineating that aspects of innovation and creativity, especially in terms of

providing new inputs, cultivation techniques, and post-harvest require special attention to strengthen the farmers' entrepreneurial behavior [12].

C. The Courage to Take Risks

The risk is an uncertainty in the future or a consequence that can have an adverse impact. Farmers always try to avoid a risk, by way of taking risks that are not too high but also not too low. Farmers generally hold the courage to take risks for believing that the greater their confidence in the decision making, the more preparation is needed for risky consequences.

Organic farmers' courage to take the risk of both production and price is proven to be very good as indicated by the high score. The level of organic farmers' courage in taking the risk tends to be higher than that of conventional rice farmers. [13]. The courage of farmers to take the risk of higher prices is higher than the courage to take the risk of production. Table 3 shows that many farmers agree that semi-organic rice has a high price risk, which is influenced by external factors. However, farmers can only accept the price. Actually, farmers are more prepared to take the risk of production because farmers can innovate by trying new technologies, they receive in order to increase their production. Farmers decide to join the SRI program, a new program with many new technological advancement that are still common among rice farmers [14]. In fact, semi-organic rice farmers are more willing to take price risks than production risks. In their view, it would be better to for them to accept any price because the price of semi-organic rice and non-organic rice is relatively the same so that farmers are familiar with the uncertainty of price risk. However, if production risks occur, farmers will lose income or experience a decline in income when the production of semi-organic rice is low.

Table 3. The Courage of Semi-Organic Rice Farmers in Taking Risks in Bantul Regency

Indicator	Score	Average
Production Risk		
Semi-organic rice farmer has high production risk	3.33	
Farmer is ready and dares to take the production risk	2.67	2.81
The farmer tries to improve the Production	2.44	
Price Risk		
Semi-organic rice has a high price risk	3.97	
Farmer ready and dare to take the risk	3.87	3.76
Farmer dares to sell PO with the high price	3.46	
Average		3.28

D. The Courage to Take Decisions

Every decision taken by the farmer is the best decision and will affect the expected goals. Farmers must be brave and confident with the decisions taken in order that they can implement the decisions perfectly by using innovation and

creativity. Farmers' courage in making decisions for semi-organic rice cultivation is seen for two reasons, namely the basis for decision making and the source of decision making.

Table 4 shows that the basic decision-making score can be highly regarded as having a score greater than 3. Farmers decide to cultivate semi-organic rice based on the belief that long-term semi-organic rice farming can improve soil structure, benefit, and semi-rice organic can be accepted by the community. These three bases make farmers more confident in making decisions for semi-organic rice cultivation.

Table 4. The Courage of Semi-Organic Rice Farmers in Taking Decision in Bantul Regency

Indicator	Score	Average
Base of Decision		
Farmers sure, the semi-organic rice is profitable	3.97	
Farmers sure, PSO improve the soil structure	3.86	3.68
Farmers sure,SO rice can be accepted by the people	3.20	
Source of Decision		
Farmers get support from the wife/husband	3,84	
Farmers get support from the family	2.18	3.62
Farmers get support from the farmer's group	3.83	
Average		3.65

In addition to the three bases that can convince farmers to cultivate semi-organic rice, farmers receive strong and full support from their husbands or wives and farmer groups. Family support has the lowest score, but this does not affect the stability of the farmer because the workforce in the family is only done by the farmers themselves. Meanwhile for planting and harvesting, they rely a lot on the labor outside the family.

Farmer's courage in making decisions is an accumulation of personal support and environmental support from those around him, including the wife, family, other farmers and group leaders.[15].

This shows that the decision-making is not done based on their own preference, but there are other factors that influence the decision on the farm. The results of this study reinforce Mosher's opinion that the role or support of farmer groups as the source of decision making has the highest score. This shows that the role of farmer groups in the development of organic rice farming becomes very important, to facilitate farmers in terms of cultivation technical assistance training, post-harvest management, and marketing semi-organic rice products to make the farmers more independent in terms of planning, decision making, implementation of activities, and courage in overcoming risks.

E. The Power of Entrepreneurial Behavior of Semi-Organic Rice Farmers

Entrepreneurial behavior of semi-organic rice farmers in this study is seen from the aspect of motivation, innovation and creativity, the courage to take risks, and the courage to make decisions. Each indicator is analyzed to explain the overall entrepreneurial behavior and to find out the level of their entrepreneurial behavior. Based on Table 5., it is conclusive that the most powerful effect on the entrepreneurial behavior of semi-organic rice farmers subsequently is motivation, courage to make decisions, innovation and creativity and the last is the courage to take risks. This shows that strong motivation is needed to make decisions about semi-organic rice cultivation with innovation and creativity to make them have courage to take risks that they have to face.

Table 5. Entrepreneurial Character of Semi-Organic Farmers in Bantul Regency

Indikator	Score
Motivation	3.75
Innovation and Creativity	3.61
The Courage of taking the risk	3.28
The Courage of making a decision	3.63
Average	3.57

Overall, as seen from motivation, innovation and creativity, the courage to take risks, and the courage to make decisions, the entrepreneurial behavior of semi-organic rice farmers is quite strong, namely 3.57. The best decision certainly brings a risk, one of which is price risk. It is necessary to appreciate farmers' courage in overcoming price risk, by way of selling semi-organic rice in the form of 5-kilogram packs or bulk rice. The marketing of semi-organic rice in the form of packaging is not an easy thing, since packaging not only involve the quality of rice alone, but farmers must be creative in making attractive packaging to be able to sell the rice at high prices. Without a strong motivational drive and high enthusiasm, it is impossible that farmers will do this.

F. Factors that influence the Behavior of Farmer Entrepreneurship

Table 6. Factors influencing Farmer's Entrepreneurial Character of Semi-Organic Rice Farming in Bantul Regency

Variable	Regression Coefficient	Sig
Constants	105.695***	0.0000
Age	0.1108 ^{ns}	0.4459
Education	1.4838***	0.0027
Experience	0.7609***	0.0006
Training	0.1619*	0.0790
Market Orientation	1.1480***	0.0000
Network	2.0202***	0.0091
Government's Support	1.5188***	0.0000
R ²	0.6183	
F-tes	26.6075	

*** : Significant on $\alpha = 1\%$

** : Significant on $\alpha = 5\%$

* : Signifikant on $\alpha = 10\%$

ns : Not significant

The factors that influence the entrepreneurial behavior of semi-organic rice farmers consist of age, education level, farmers' experience, farmers' participation in training, marketing orientation, network and government support. Estimation results from Table 6 show that a constant of 105.695 is significant at an error rate of 1%, meaning that if the influential factors are in a constant state, the entrepreneurial behavior score is 105.695. Basically, the entrepreneurial behavior of farmers is quite strong. Nationally, without being influenced by age, education, experience, training, cooperation network, market orientation, and government support, the entrepreneurial behavior of semi-organic rice farmers is strong enough to have a score of 105.695 or below the average entrepreneurial behavior score (200.01).

Education has a positive and significant effect on the entrepreneurial behavior of semi-organic rice farmers with a regression coefficient of 1.4838. The higher the level of education, the more the entrepreneurial behavior of farmers. Farmer education can shape behavior and attitude as an entrepreneur. Education not only provides a theoretical foundation for entrepreneurship but also shapes the attitude, behavior, and mindset of an entrepreneur [16]. Experience significantly influences the entrepreneurial behavior of farmers in that the more experienced the stronger the entrepreneurial behavior. Farmers normally will learn the lesson from what they have experienced. The longer their experience, the better their knowledge about the advantages and disadvantages of semi-organic rice farming. On this basis, they will maintain their strengths and try to avoid the risks of its shortcomings.

The participation of farmers in training/counseling has a significant effect on the 5% error rate. The more frequent they attend counseling/training on organic rice, the better their entrepreneurial behavior. The existence of counseling or training will open and add some insights, level of knowledge, and skills so that farmers will be more innovative and creative in semi-organic rice cultivation.

Market orientation significantly affects the entrepreneurial behavior of farmers, in that the stronger the orientation of farmers in serving customers, the stronger their entrepreneurial behavior. Farmers' efforts to get added value or greater profits must be done, namely by selling semi-organic rice products in the form of organic rice with a specific packaging size according to consumer needs. The broader the network of cooperation in developing semi-organic rice farming will affect their entrepreneurial behavior. The cooperation network in terms of the marketing of rice crops has not provided sufficient benefits for farmers. As a matter of fact, semi-organic rice farmers are reluctant to cooperate in partnering with rice traders because semi-organic rice is valued at the same rate as non-organic rice, so that the harvested rice is consumed by itself or sold to consumers who want to pay at a higher price than non-organic rice. Thus, semi-organic rice farmers tend to avoid making any marketing cooperation with rice traders [12]

Government support has an influence on the entrepreneurial behavior. This support is related to the

improvement of various policies, access to productive resources (starting with raw materials, and financial), and market access. If facilitation and overall cooperation are carried out properly, efforts to grow innovative new entrepreneurs will be achieved [17] In addition, government support for the price of semi-organic rice continues to be carried out to maintain the stability of semi-organic rice prices in Bantul Regency, as in the research [18] government support is needed in determining the price of imported soybeans used as raw material for making tempe. The stability of soybean prices can motivate craftsmen to increase production.

Individual behavior (internal factors) and business environment are noted to have a positive and significant effect on the entrepreneurial behaviors so that an increase in entrepreneurial behavior will improve the perspective of Gay Arabica coffee farming performance [1].

IV. CONCLUSION

Semi-organic rice farmers in Bantul Regency are known to have strong entrepreneurial behavior. It is noteworthy that motivation becomes the most influential factor of the entrepreneurial behavior of the farmers, while courage in taking risks has the weakest influence. In addition, other factors such as education, experience, training, market orientation, networking and government support are revealed to influence the entrepreneurial behavior of semi-organic rice farmers. The entrepreneurial behavior of semi-organic rice farmers is categorized as quite high. Strengthening the entrepreneurial behavior of farmers can be done through farmer groups since they have a large role in the development of semi-organic rice farming. Several steps to be taken to strengthen the entrepreneurial behavior of farmers include a) directing the farmer group program to conduct activities that can motivate farmers to widen entrepreneurship opportunities such as holding an Achievement Motivation Training (AMT) b) organizing assistance activities for farmers to be more creative and innovative about organic rice farming starting from processing land, provision of quality seeds, making organic fertilizers and organic pesticides to post-harvest handling.

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