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# Innovative and Creativity As Entrepreneurial Ability of Organic Rice Farmers in Bantul, DIY

Nur Rahmawati<sup>1,a)</sup>, Slamet Hartono<sup>2,b)</sup>, Lestari Rahayu<sup>2,c)</sup>, and Masyhuri<sup>2,d)</sup>

<sup>1</sup>Universitas Muhammadiyah Yogyakarta, Jl. Lingkar Selatan, Kasihan, Bantul, Yogyakarta, Indonesia

<sup>2</sup>Faculty of Agriculture, Universitas Gadjah Mada, Jl. Flora, Bulaksumur, Yogyakarta, Indonesia

<sup>a)</sup>Corresponding author: rahma\_wati\_mf@mail.ugm.ac.id

<sup>b)</sup>slamet.hartona@gmail.com

<sup>c)</sup>lestarirahayu\_wlyt@ugm.ac.id

<sup>d)</sup>masyhuri@ugm.ac.id

**Abstract.** As the farm manager, farmers have an important role in increasing their farming income and family welfare as the goal of their farming activity. To achieve their goal the farmers have to be able to produce a high quality and competitive product. The organic farming system is a method that can be applied in producing high-quality products and ensuring the preservation of the environment for sustainable production. This research aims to analyze how individual and environmental factors influence the innovative and creative behavior as the entrepreneurial ability of organic rice farmers. Survey was done by interviewing 80 rice organic farmers from four districts in Bantul, and then it was analyzed using regression. The result shows that business environment, including credit access, market orientation, the training experiences, the networking and government support; and the individual factors such as the farmers' age, the farming experience, the family burden and the education level influence the innovative and creativity behavior as rice organic entrepreneur.

## INTRODUCTION

Organic rice is an organic food that is believed as safety food, that produced naturally without chemicals and artificial fertilizers used [1]. Organic products are yielded from organic farming as a production system that maintains soil health, ecosystems and human [2]. The increasing consumers awareness about healthy food increasing the consumer preference towards organic products, it can be seen from the demand for organic products, especially rice, which increases from year to year. Since 2006 organic rice production has not been able to meet market needs, it because of the production growth is not as fast as the growth of the demand. In fact, based on the width of land that has been rice organic cultivated it shows that only a small portion of land potential that could be developed to capture organic rice market opportunity. In 2009, three percent of the total 58,000 hectares of rice fields in Yogyakarta applied organic system[3].

The utilization of the potential of agricultural natural resources, in this case, the land, is heavily dependent on the potential of human resources, especially farmers. During this time, the role of farmers as the main actors who have the creativity and inventiveness is less maximized. Based on the reality, the success of farmers in achieving high performance is not only determined by the activity of cultivation technique but also by the ability of farmers, whether attitudes, knowledge and skills which are actualized in running their farm, since planting preparation until marketing the products. This study purposes to find out the factors that influence innovative and creativity as criteria of the entrepreneurial ability of farmers in organic rice farming.

Innovative and creativity are the character that inherent in entrepreneurship ability. Innovative is defined as the ability to apply the creativity in the framework of problem-solving and finding opportunities (*doing anew thing*); while creativity is the ability to think of something new and different [4] divide creativity into three elements, including see new viewpoint (perspective), discover new relationships, and form new combinations of objects, concepts or phenomena. As part of entrepreneurial criteria, innovative dan creativity has a correlation with education,

age, and gender [5], the length of business and experience. The role of education to entrepreneurs is becoming increasingly important since it can help improve their business, identify options and make decisions, add information that will be used when running the business, determine the depth of the planning locus, and have a significant impact on the return on assets [6]; age and gender of an entrepreneur significantly affect the business performance [5]; while Stam *et al.* in Minniti and Naude [7] state that when someone starts a new business after a failure, it depends on his capacity to learn from experience.

A business environment such as access to capital and credit, access to training, market orientation, business scale, networking and government support are some factors that influence the entrepreneurial criteria base on environment aspects. The capital and credit access are the most important environmental factors in entrepreneurial activity [8]. This problem is more often heard in developing countries related to the unemployment rate and gender discrimination [9]. Furthermore, from the various literature it is mentioned that credit has a positive impact on business performance. While discrepancy in access to training and consulting services is the main reason that is always used to explain the low performance of an entrepreneur [10]. Training is seen as a cost and is reactive rather than as an investment and a part of the strategic business planning. Market orientation study is only done in factories, services and big retail companies in the United States and Western Europe, and literature reports very little about the behavior of business marketing in developing countries and underdeveloped countries, especially about the marketing behavior of small businesses run by women [11]. Many studies have reported that the scale of business is one of the important factors for organization process and performance [12]. The lack of a network is commonly found in entrepreneurship [13]. Inadequate diversity in the network owned by an entrepreneur is a result of the lack of relationship with people who are key factors and core suppliers in their activities. Tambunan [14] reports that in some cases cluster development policies in Indonesia have not been worked successfully. This is because the linkage between business group and the market is neglected, the potential of SMEs to organize them selves decreases and support from local government and other organizations are limited.

## RESEARCH METHODS

The research was conducted using survey research on organic rice farmers in Bantul as the research object. Organic rice development center in Bantul district include Bambanglipuro sub-district, Pandak sub-district, Imogiri sub-district, and Pundong sub-district. In each sub-district, the samples of villages having farmer groups active in organic rice farming are taken. From each selected farmer group, samples of farmers are taken using *non-proportional random sampling* as many as 20 samples of farmers for each group. This research uses regression analysis to find the influence of individual factors and business environment to the innovative and creativity as entrepreneurial criteria, consist of the new product introductory, the using of new input, the alternative of cultivation technique, and the new post-harvest technique. The regression analysis conducted the model below.

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_9 X_9$$

$Y_1$ = Score introductions of new products	$X_3$ = Marketing Orientation (score)
$Y_2$ = Score the use of new input	$X_4$ = Cooperation Network (score)
$Y_3$ = Score new cultivation technique	$X_5$ = Government support (score)
$Y_4$ = Score new post-harvest technique	$X_6$ = Age(year)
$\beta_0$ = Constanta	$X_7$ = Education (year)
$\beta_1 - \beta_9$ = Coeffisien Regression	$X_8$ = Family Burden (person)
$X_1$ = Access to credit (score)	$X_9$ = Experience (year)
$X_2$ = Training (score)	

## RESULTS AND DISCUSSION

Innovation and creativity are the ability to think and apply something new or different in the context of problem-solving and finding opportunities (*doing anew thing*). In this study, it is measured from these indicators indeed: 1) introduction of new products; 2) sources of new organic input (fertilizer-pesticide) supply; 3) methods of production and new cultivation techniques, and 4) management method and new post-harvest techniques.

## Introduction of New Products

The introduction of new products is farmers' ability to introduce organic rice as a profitable, healthy and environmentally friendly product. This product has not yet been recognized and not well understood by most people. The ability to introduce organic rice is influenced by capital and credit access, the level of education and farming experiences. The degree of elasticity of the introduction of new products due to the influence of business environment and individual conditions is presented in Table 1.

**TABLE 1.** Estimation Coefficient Of The Factors That Affect The Introduction Of New Products

Variable	Coefficient	Probability	Variable	Coefficient	Probability
(Constant)	0,464***	0,000	GS	-0,052	0,193
AC	0,197***	0,000	Age	-0,046	0,222
Tra	-0,053	0,169	Educ	0,115**	0,021
MO	-0,022	0,394	FB	-0,002	0,942
CN	-0,002	0,979	Exper	0,048**	0,037

R<sup>2</sup> = 0,570

F<sub>hitung</sub> = 15,638

\*\*)Significant pada α 5% ; \*\*\*)Significant pada α 1%

Where :

AC = Access to credit	Age = Age
Tra = Training	Educ = Education
MO = Market Oriented	FB = Family Burden
CN = Cooperation Network	Exper = Experience
GS = Government support	

Access to credit has a significantly positive influence on the ability to introduce new products made by farmers. One of the conditions commonly applied by credit institutions in passing credit application is the feasibility of the applicant from their business aspect could be trusted. It is also supported by education and experience factors which significantly have a positive influence on the ability to introduce new products. Thus, education, experience and access to credit will strengthen the ability of farmers in introducing new products so that organic rice farming could develop.

## The Use of New Input

The use of new input is the ability of farmers in providing both fertilizers and organic pesticides that support the realization of organic rice production. The ability to provide organic input is usually in the form of skills to produce their own organic fertilizers and pesticides needed in organic rice farming. The ability to provide organic input is influenced by the credit access and network cooperation, and also the farmer's dependencies. The degree of elasticity of the use of new input due to the business environment and the individual condition can be seen from the estimated coefficient of the factors that affect the use of new input which is presented in Table 2.

**TABLE 2.** Estimation coefficient of the factors that affect the use of new input

Variable	Coefficient	Probability	Variable	Coefficient	Probability
(Constant)	3,650***	0,000	GS	-0,129	0,239
AC	0,209***	0,002	Age	-0,030	0,766
Tra	0,156	0,135	Educ	0,051	0,700
MO	-0,029	0,688	FB	0,129*	0,094
CN	-0,422***	0,007	Exper	0,016	0,794

R<sup>2</sup> = 0,190

F<sub>hitung</sub> = 2,761

\*)Signifikan pada α 10% ; \*\*\*)Signifikan pada α 1%

Access to credit and family burden have a positive influence on the ability to supply organic input. Open access the credit will support farmers as capital in the provision of input, so farmers could work well in providing the organic input needed in organic rice farming. Meanwhile, the bigger number of family members would have captured new information about the provision of input in organic rice business. Cooperation network negatively

affects the ability to provide new inputs for farmers. The established cooperation network does not give trust to farmers in providing input because the provision of organic inputs is independently made by farmers while the price of new organic inputs in the market tends to be more expensive and is less affordable by the farmers.

### New Cultivation Technique

New cultivation technique is the ability of farmers to adopt technology and implement new methods in the implementation of organic rice cultivation since land preparation, seed preparation, planting, fertilizing, maintenance, watering, until harvesting. New cultivation technique is influenced by access to credit and cooperation network, and also the farmer age. The degree of elasticity of new cultivation techniques due to the influence of business environment and individual conditions can be seen from the estimated coefficient of factors that affect new cultivation technique which is presented in Table 3.

**TABLE 3.** The estimated coefficient of factors that affect new cultivation technique

Variable	Coefficient	Probability	Variable	Coefficient	Probability
(Constant)	3,147***	0,000	GS	-0,017	0,506
AC	0,084***	0,000	Age	-0,041*	0,089
Tra	-0,017	0,483	Educ	-0,023	0,452
MO	-0,005	0,779	FB	-0,005	0,788
CN	0,155***	0,000	Exper	0,012	0,398

R<sup>2</sup> = 0,516

F<sub>hitung</sub> = 12,543

\*)Signifikan pada  $\alpha$  10% ; \*\*\*)Signifikan pada  $\alpha$  1%

Access to credit and cooperation network positively affects the ability in the adoption and application of new techniques in organic rice cultivation. Access to credit will support farmers as capital in applying new techniques in organic rice cultivation. The availability of capital can help farmers in the adoption and application of new technology well. Established cooperation network between farmers and partners can provide insight, knowledge and skills to farmers in adopting new technologies in the cultivation of organic rice cultivation. In addition, a network of cooperation also opens up the availability of information and access to new technology in organic rice cultivation. However, the farmer age has a negative influence on the ability to adopt new technology, the older the farmer, the lower the ability to adopt new technology in farming.

### New Post-harvest Technique

The new post-harvest technique is the ability to handle rice after harvest starting from drying up to marketing in a relatively new way or technique. The new post-harvest technique is influenced by the access to credit, market orientation, and cooperation network. The degree of elasticity of new post-harvest technique due to the influence of business environment and individual conditions can be seen from the estimated coefficient of factors that affect new post-harvest technique as presented in Table 4.

**TABLE 4.** The estimated coefficient of factors that affect new post-harvest technique

Variable	Koefisien	Probability	Variable	Koefisien	Probability
(Constant)	2,072***	0,000	GS	-0,069	0,389
AC	0,094*	0,055	Age	0,101	0,181
Tra	0,043	0,576	Educ	0,113	0,250
MO	0,233***	0,000	FB	-0,026	0,647
CN	-0,333***	0,004	Exper	0,000	0,997

R<sup>2</sup> = 0,303

F<sub>hitung</sub> = 5,110

\*)Signifikan pada  $\alpha$  10% ; \*\*\*)Signifikan pada  $\alpha$  1%

Access to credit and market orientation significantly have a positive influence on the new post-harvest technique of organic rice farmers, while cooperation network has negative effects on it. The availability of credit for farming

that is easily accessible and a clear marketing orientation of organic rice products foster the creativity of farmers in post-harvest handling with new methods and techniques. A network of cooperation in terms of marketing the crop so far has not provided adequate benefits for farmers. Farmers are reluctant to establish cooperation with rice traders because their organic rice is given the same value as non-organic rice, so the organic rice is used for self-consumption or sold to consumers who are willing to pay a higher price than the price of non-organic rice. Thus organic rice farmers tend to avoid joint marketing with rice traders.

## CONCLUSION

This study proves that the access to credit, the market orientation, the access to training, the networking and the government supported as business environment factors; and the farmer age, the farming experience, the level of education, and the family dependencies as individual factors; were influence the innovative and creativity as entrepreneurial ability of organic rice farmers. In order to strengthen the entrepreneurial character of organic rice farmers, the development of the business environment is indispensable, accompanied by government support in the form of training and the provision of facilities and infrastructure of transportation, communication, irrigation, and markets as well as intensively directed and sustainable mentoring. Based on the factor of entrepreneurial characteristics and individual factor, it is needed to conduct further study of the management capacity of farmers that supports farmer's entrepreneurship in order to develop organic rice agribusiness.

## REFERENCES

1. R. Connor and L. Douglas, *Nutrition and Food Science* **31**, 254-258 (2002)
2. Badan Standardisasi Nasional, *Standar Nasional Indonesia nomor 01-6729-2002 tentang Sistem Pangan Organik* (BSN, Jakarta, 2010)
3. <http://ibutani.blogspot.com>. available online Januari April 2010.
4. Newel, Shaw and Simon in Khasali, Rhenald, Nasution, A. Hakim, Ciptarahayu, A., Mirzanti, I.R., Larso,D., Rustiadi, S.,Daryanto, and H. Mulyana,*Modul Kewirausahaan Untuk Program Strata 1*. (Hikmah. Jakarta, 2011)
5. S. Ainin, Y. Kamarulzaman, A. G. Farinda, A. Che, "Business and Entrepreneur Characteristics Influence on Business Performance of Professional Small Medium Enterprises", The 5th European Conference on Entrepreneurship and Innovation Proceedings of ECIE (University of Athens, Greece, 2010), pp. 31.
6. Jane W. Gathanya, Henry M. Bwisa, John M. Kihoro, *International Journal of Business and Social Science* **2**, 265-272 (2011).
7. Minniti, Maria and Wim Naude, *European Journal of Development Research* **22**, 277-293 (2010).
8. Mat, I. E. Norsiah and Razli Che Razak, *Asian Social Science* **7**, 124 – 130 (2011).
9. S. Carter and E. Shaw, *Women's Business Ownership: Recent Research and Policy Developments* (UK Small Business Service, Sheffield, 2006)
10. Roomi, M. Azam and P. Harrison, *Education and Training* **50**, 687-696 (2008).
11. Afza, T. Osman, Mohd Hassan Bin Mohd and Rashid, M.A. *European Journal of Social Sciences*, **18**, 109-119 (2010).
12. Baum, J. Robert, E. A. Locke and Ken G. Smith, *Academic Management Journal* **44**, 292-303 (2001).
13. Itani, Hanifa, Y. M. Sidani and I. Baalbaki, *An International Journal* **30**, (2011).
14. Tulus Tambunan, *Usaha Kecil dan Menengah di Indonesia: Beberapa Isu Penting* (Salemba Empat, Jakarta, 2005)