

# Effects of Entrepreneurship on The Performance of Organic Rice Farmers in Tasikmalaya Regency

Candra Nuraini<sup>1,\*</sup>, Iskandar Ma'moen<sup>1</sup>

<sup>1,2</sup> University of Siliwangi, Agribusiness, Tasikmalaya

**Abstract.** This study aims to analyze the influence of the rice organic farmers' entrepreneurship on the farming performance and identify the influence of farming technique or activities on the farming performance. This study used a survey method. The study was conducted in Manonjaya and Salawu sub-districts, Tasikmalaya regency, August until November 2019 which was chosen using purposive sampling technique applied to 50 samples. The respondents who were organic rice farmers were recruited using multistage purposive sampling technique. Data analysis was performed using structural equation modeling (SEM) with WarpPLS 2.0. The result shows that entrepreneurship significantly and positively affects farming techniques. Entrepreneurship has significant and positive influence on the organic rice farming performance. In addition, farming technique is significantly and positively influential on the organic rice farming performance.

## 1 Introduction

In general, there are two types of farmers: farmers who have restricted diversification and farmers who have entrepreneurship with the following characteristics: overwhelmed with opportunities in agriculture, orientation in entrepreneurship, decisions made practically, risk-taker in nature and competition with other ventures [1]. Based on [2] entrepreneurship allows farmers to take advantage of technology to grow the farms. Additionally, agriculture has a more important role now; not only does agriculture intensify the food production, but also supports the growth of rural areas [3]. Successful entrepreneurs possess orientation in entrepreneurship are marketing and realize that it is important to utilize technology in agriculture.

Organic rice farming is an implementation of sustainable farming technology. It requires a conversion or transition period from conventional to organic system. The initial stage of the organic farming implementation has become a challenge for farmers to continue and sustain the farming. [4] Farming is often characterized by high variability of production results or great risks. Farming products are dependent on climates, pests, weather, diseases, as well as the volatility of input and output prices. All of these contribute to the market risk. Agricultural commodity prices often fluctuate and lack stability and certainty.

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\* Corresponding author: [candranuraini@unsil.ac.id](mailto:candranuraini@unsil.ac.id)

Such condition leads to farmers' intention to return from organic farming system to conventional farming system. From the business standpoint, organic farming system has a strong potential to offer business opportunities because organic rice is a premium agricultural product that has a high selling value [5, 6]. Additionally, the world market has seen an increasing demand for organic rice [7]. As a result, entrepreneurship determines the farmers' success in adapting to the changing business environment [8]. Thus, entrepreneurial farmers are different from common farmers. Entrepreneurship is a form of activity to build one's attitudes, behaviors and creativity in seeking the desired results [9]. For small farmers who are thriving in the changing environment or global economy, an entrepreneurial culture needs to be fostered in rural communities. Thus, the focus should be shifted from production activities to market-oriented activities [10].

Some studies have shown that attitudes, behaviors and entrepreneurship a businessman must possess include self-efficacy, creativity, commitment, risk-taking nature, confidence, task and result-oriented character, originality, future-oriented character, integrity, perseverance and innovative ideas [3, 11]. The contributing factors in maintaining entrepreneurship and competence include positivity, determination, experiences, perseverance and hard work [12]. These internal factors play a role in the entrepreneurship development.

Entrepreneurship positively affects the agricultural business growth and performance [13]. Performance is a set of achieved results and refers to the actions of achieving and carrying out requested tasks [14]. The performance of farmers who have entrepreneurial attitude can be measured using physical achievements, including (1) the increasing income gained from the amount of production, (2) the expansion of marketing areas, and (3) competitive advantages. However, non-physical success or farmers' social capital is the commitment. The concept of performance is the same as the objective achievements and the production stage [15]. Consequently, entrepreneurship can provide opportunities and assets for entrepreneurs [3].

Entrepreneurship in the agricultural sector will enable farmers to make strategic planning [16], have the courage to implement the plans in farming, as well as supervise and evaluate the farming operations. Furthermore, [17] farmers are basically business owners – managers; thus, farming can be considered a business.

The above explanation leads to the need of a study on farmers' entrepreneurship. This study concerns to investigate the influence of the entrepreneurship of rice organic farmers on the farming performance and identify the impacts of farming technique or activities on the farming performance.

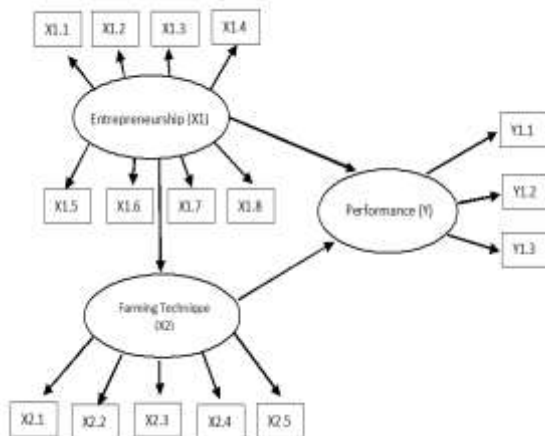
## **2 Method**

The descriptive approach was employed to population consist of organic rice farmers and carried out between August 2019 and November 2019. The sample of the study was 50 farmers selected using the multistage purposive sampling technique, which refers to the efficient and effective use of various purposive sampling methods altogether.

The purposive sampling technique was used to decide Tasikmalaya regency as the research site because it is one of the organic rice production centers and has exported the rice to many countries. Later, two sub-districts of organic rice centers were chosen: Manonjaya and Salawu sub-districts. Two farmer groups, Sunda Wenang and Harapan Jaya Farmer Groups, were chosen to represent the two sub-districts.

Data were collected in accordance with the study's needs to meet the research objectives through interview, record, and observation. Data were comprised of primary and secondary data. Subsequently, data were analyzed using variance or component-based structural equation modeling (SEM). This approach simultaneously used both measurement

model and structural model applied to test the validity and reliability, while the structural model to test the causality (hypothesis testing using a predictive modeling). Furthermore, [18] PLS simulated modeling method for analysis because it is not assumed that data must fit the measurement scale, which means the sample size can be small (under 100 samples). The study's empirical model, based on the conceptual framework built on the basis of the theory depicted in Figure 1.



**Fig. 1.** The Conceptual framework

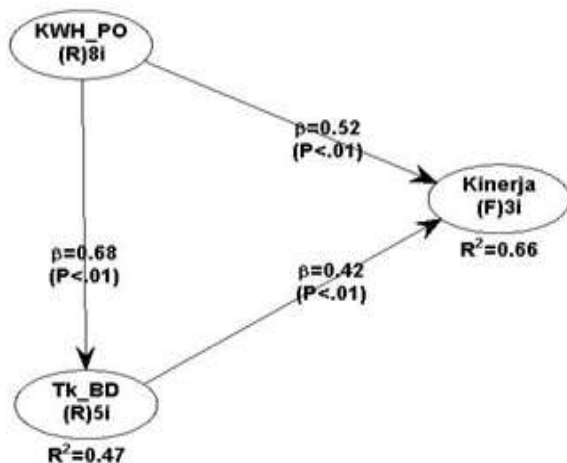
Notes:

- X1.1 : Need for achievement
- X1.2 : Independence
- X1.3 : Acceptance of risk
- X1.4 : Creativity
- X1.5 : Farming knowledge
- X1.6 : Farming skills
- X1.7 : Confidence
- X1.8 : Market orientation
- X2.1 : Land management
- X2.2 : Cultivation
- X2.3 : Fertilization
- X2.4 : Maintenance
- X2.5 : Harvesting
- Y1.1 : Production
- Y1.2 : Profit
- Y1.3 : Technique efficiency

### 3 Results and Discussion

#### 3.1 Effects of Entrepreneurship and Farming Technique on the Farmer Performance

Analysis of the Effects of Entrepreneurship on the Performance of Rice Organic Farmers described in the path diagram of the model. KWH\_PO denoted the entrepreneurship, Tk\_BD denoted the farming technique, and Kinerja denoted the farming performance. The path diagram expressed the structural relationship among three variables and constructed the dependent and independent variable. Data processed using a software called WarPLS 2.0 presented in Figure 2.



**Fig. 2.** Path Diagram Model

**Table 1.** Goodness of Fit Test Results oh Model

No.	Model Fit and Quality indices	Criterion Fit	Analysis Results	Conclusion
1.	Average path coefficient (APC)	P<0.05	0.541 P<0.05	Good
2.	Average R squared (ARS)	P<0.05	0.562 P<0.05	Good
3.	Average adjusted R-Squared (AARS)	P<0.05	0.549 P<0.05	Good
4.	Average block VIF	Acceptable if $\leq 5$ Ideally $\leq 3.3$	1.297	Ideal
5.	Average full colinerity VIF	Acceptable if $\leq 5$ Ideally $\leq 3.3$	1.986	Ideal
6.	Tenenhaus GoF (GoF)	Small $\geq 0.1$ Medium $\geq 0.25$ Large $\geq 0.36$	0.542	Ideal
7.	Sympson paradox ratio (SPR)	Acceptable if $\leq 0.7$ Ideally $\leq 3.3$	1.000	Ideal
8.	R-squared contribution ratio (RSCR)	Acceptable if $\leq 0.9$ Ideally $\leq 3.3$	1.000	Ideal
9.	Statistical supresion ratio (SSR)	Acceptable if $\geq 0.7$	1.000	Ideal
10.	Nonlinier bivariate causality direction ratio (NLBCDR)	Acceptable if $\geq 0.7$	1.000	Ideal
11.	Average adjusted R-Squared (AARS)	P<0.05	0.549 P<0.05	Good
12.	Average block VIF (AVIF)	Acceptable if $\leq 5$ Ideally $\leq 3.3$	1.297	Ideal
13.	Average full colinerity VIF	Acceptable if $\leq 5$ Ideally $\leq 3.3$	1.986	Ideal
14.	Tenenhaus GoF (GoF)	Small $\geq 0.1$ Medium $\geq 0.25$ Large $\geq 0.36$	0.542	Ideal
15.	Sympson paradox ratio (SPR)	Acceptable if $\leq 0.9$ Ideally $\leq 3.3$	1.000	Ideal
16.	R-squared contribution ratio (RSCR)	Acceptable if $\leq 0.7$ Ideally $\leq 3.3$	1.000	Ideal
17.	Statistical suppression ratio (SSR)	Acceptable if $\geq 0.7$	1.000	Ideal
18.	Nonlinier bivariate causality direction ratio (NLBCDR)	Acceptable if $\geq 0.7$	1.000	Ideal

The model applied to the estimation requires at least two indicators, model fit and quality [19]. The fulfilled criteria of model fit and quality indices describing the goodness of fit are *APC*, *ARS*, *paradox ratio*, *R-squared contribution ratio* and *Statistical suppression ratio*.

In this study, the latent variables, entrepreneurship (X1), farming techniques or activities (X2), were the measurement models implementing reflective indicators; thus, the evaluation of the measurement model representing outer model was attained by examining the convergent and discriminant validity of the indicators as well as the composite reliability. Outer model test results are provided in Table 2.

**Table 2.** Outer Model Test Results

Variable	Indicator/Item	Outer Loading	p-value
Entrepreneurship (X1)	Need for achievement	0.808	<0.001
	Independence	0.167	0.108
	Acceptance of risk	0.393	0.001
	Creativity	0.029	0.417
	Farming knowledge	0.807	<0.001
	Farming skills	0.752	<0.001
	Confidence	0.827	<0.001
	Market orientation	0.598	<0.001
Farming Technique/Farming Activities (X2)	Land management	0.419	<0.001
	Cultivation	0.298	0.011
	Fertilization	0.688	<0.001
	Maintenance	0.841	<0.001
	Harvesting	0.800	<0.001
Performance (Y)	Production	0.997	<0.001
	Profit	0.997	<0.001
	Technique efficiency	0.015	0.457

Table 2 illustrates that indicators giving positive impacts on the measurement of farmers' entrepreneurship are the need for achievement (X1.1), farming knowledge (X1.5), farming skills (X1.6), confidence (X1.7), market orientation (X1.8) in which each has outer loading value 0.808, 0.807, 0.752, 0.827 and 0.598 respectively at the error rate of 5%. These results indicate that the indicators are valid to measure the variable of farmers' entrepreneurship. Results of analysis also show that confidence is the strongest indicator in reflecting the farmers' entrepreneurship since it has the highest outer loading value 0.827.

Results of outer model testing on the variable of farming techniques or activities (X2) show that four indicators, land management (X2.1), fertilization (X2.3), maintenance (X2.4) and harvesting (X2.5), positively affect the measurement of the farmers' farming techniques. The status of farming techniques depicting land management, cultivation, fertilization, maintenance and harvesting, was reflected by the higher value of the indicators. The four indicators had outer loading values 0.414, 0.688, 0.841 and 0.800 respectively at the 5% of error rate. Among these four influential indicators, the maintenance indicator is the most dominant in reflecting the status of farming activities or techniques.

The test shows a positive influence of the indicators of production (Y1.1) and profit (Y1.2) on the measurement of farming performance. These two indicators had the same outer loading value 0.997 at the 5% error rate. Production and profit should be the indicators measuring performance because farmers can increase yields and income. The two indicators are equally dominant and can primarily reflect the farming performance. However, the technique efficiency indicator does not influence the farming performance measurement.

Innovation uttered by entrepreneurial character was described in to business change processes and business enterprise characteristics, futhermore, supporting diversification and determining the economic benefit [20, 21, 22]. Entrepreneurial studied by [23] got the results that the opportunity-seeking, innovation, risk-taking attitudes as entrepreneurial indicators enhancing the rural development. Performance perspective by [24] separated in to specific competence managing resources, financial capacity including initiation and development, and entrepreneurial efforts in making innovation resulting impacts to the performance. Intepretation about risk-taking attitudes describing good managing risk showed more profitable and business growth [25]. The profitable farming as performance outlined in [26] was resulted from innovation, knowledge improvement, and proactive behavior.

Analysis results of latent variables were employed to answer the hypotheses of variables affecting farming performance. Analysis results of latent variables and the structural path coefficients are written in Table 3 below.

**Table 3.** Results Latent Variable Coefficients Results

	<b>Kwh_PO X1</b>	<b>Farming Technique X2</b>	<b>Performance Y</b>
R-squared			0.657
Adj R-squared			0.642
Composite reliab	0.797	0.626	0.800
Cornbach alpha	0.713	0.399	0.601
Avg. Var. Extrac.	1.914	0.417	0.663
Full collin. VIF	1.914	2.066	1.979
Q-squared		0.476	0.651

Based on the above table, the R-squared value is 0.657. R-squared value shows the proportion of response variables that can be explained by predictor variables, entrepreneurship and farming technique variables. The organic rice farmers’ performance was influenced by entrepreneurship and farming technique variables by 65.7% and 34.3% was the influence of variables not included in the research and containing errors.

Farming technique depicted on the utilization of the tools to cultivate the land was analyzed by [27]. This findings also regarded with the technology adoption by farmers using machine. [28] Entrepreneurial capacity that described the business structure, competencies and the understanding of achievement. The performance was indicated with the growth of the business or the farming performance that highlited the entrepreneurial performance of the person doing the business or farming activities. The entrepreneur characteristics was argueded then [29] explaining the education, experience, and skills contributing to the performance of business, by definition, entrepreneurial experience was greatly meaningful factor because of lifestyle business regarding with survival and maintaining the income, by consistent with [30]. [31] The innovation of farming related with farming technique and profitability encouraged the region, then the coepetitive farm entrepreneur had reason to develop the collaboration among farmers. Entrepreneurial approach was described by [32] confirming that entrepreneurial created novelties in organic farming from production through the marketing system. [33] Study in the strong contribution of entrepreneurship described using risk taking, innovation, creativity, achievement, self condidence, and relationship with others.

The composite reliability value and the cronbach’s alpha value depicted in Table 3. can be used to determine the reliability of the research instrument. The composite reliability value was greater than 7. The values of entrepreneurship and farmers’ performance variables more than 7 explained the research instrument both good and fair reliability

levels. On the other hand, the farming technique had the value >6, signifying that this variable has fair reliability level. Thus, these variables have fulfilled the reliability requirements.

Full collinearity VIF is the results of full collinearity assessment, including vertical and lateral multicollinearity. Analysis results suggest that the full collinearity VIF was < 3.3, meaning that the model has no both vertical and lateral collinearity problems as well as common method bias. The table clearly shows that the Q-squared value was bigger than zero. Q-squared is used to examine the acceptable predictive validity of predictor latent variables at the criterion variable regarding the connection with endogenous latent variables.

### 3.2 Warp PLS Analysis Results

The assessment of the structural path coefficient was conducted in order to discover the extent of the influence of each variable. The results were obtained from the inner model of WarpPLS analysis results; thus, the direct effects of variables are visible. The analysis results inner model of WarpPLS presented in Table 4. Committed with p-value less than 0.01.

**Table 4.** Inner Model of WarpPLS Analysis Results

Relationship	Coefficient	p-value	Conclusion
Entrepreneurship → Farming Activites	0.68	<0.01	Significant
Entrepreneurship → Farming Performance	0.52	<0.01	Significant
Farming Activites → Farming Performance	0.42	<0.01	Significant

Other research was done by [34] the performance that was represented by financial performance, indicating the ability of farmer to decrease the cost of farming and doing the efficient activities. [35] argued on the research about entrepreneurial orientation toward the farm business performance that resulted knowledge having important role determine the farming performance, this in line with [36] describing the ability of knowledge acquisition. [37] Explanation of the farming performance employed the skill of farmer to sell more products, cost management and managing the strategic goals. [38] separated the individual characteristics to the indicators such as experience, farm business motivation and perspective toward business. Whereas, the entrepreneurial behavior interpreted in to innovative, risk taking, independent, opportunity seeing, and earnest pursuit. The farming technique variable employed by [39] showed the impact to the farming performance.

From Table 4. the values of the direct effect of the farmers’ entrepreneurship on the organic rice farming performance were 0.52 and  $p < 0.01$ . The regression coefficient value of 0.52 indicates that the increased entrepreneurship of the organic rice farmers influences the improvement of the farming performance by 0.52 with the assumption that other variables were constant. Statistical test results show that the farmers’ growing entrepreneurship significantly affects the farmers’ performance.

The influence of entrepreneurship (X1) on farming technique (X2) was indicated by the structural coefficient value 0.68 and engaged the  $p$ -value <0.01. The  $p$ -value < 0.05 and the coefficient having possitive value constructed that entrepreneurship (X1) significantly influence on farming technique (X2). It can be concluded that the higher the farmers’ entrepreneurship (X1), the more powerful the farmers’ farming technique/activities (X2).



The effect of entrepreneurship (X1) on the organic rice farming performance (Y) is shown by the structural coefficient 0.52 and concerned 0.01 p-value. Since the p-value <0.0.5, it is assumed there is a significant impact of entrepreneurship (X1) on farming performance (Y). Thus, the higher the farmers' entrepreneurship (X1), the stronger the organic rice farmers' performance (Y).

The influence of rice farming activities or technique (X2) on organic rice farming performance (Y) is indicated by the structural coefficient 0.42 and the p-value <0.001. Since occupy the p-value<0.05 and the positive coefficient, it is clear that farming activities/technique (X2) have significant and positive influence on the farming performance (Y). Therefore, the better the farming activities/technique (X2), the stronger the farmers' performance (Y).

## 4 Conclusion

Entrepreneurship significantly and positively affects farming techniques. Entrepreneurship has significant and positive influence on the organic rice farming performance. In addition, farming technique is significantly and positively influential on the organic rice farming performance.

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