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Farmers' Understanding of Rice Farming Commercialization in South Bengkulu Regency

Gita Mulyasari*, Evon Tri Oktami, and Ketut Sukiyono

Department of Agricultural Socio-Economics, Faculty of Agriculture, University of Bengkulu, Indonesia
Corresponding Author: gita.mulyasari@unib.ac.id
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ABSTRACT: This study analyzes farmers' understanding of farm commercialization and identifies the factors influencing it in South Bengkulu Regency, a leading rice-producing area in Bengkulu Province, Indonesia. A total of 88 rice farmers were surveyed using structured questionnaires, and data were analyzed through descriptive statistics and multiple linear regression. The findings reveal that farmers' understanding of commercialization falls within the understanding category (average score: 3.51). Among the indicators, price understanding achieved the highest score (3.93), followed by market orientation (3.70). Risk (3.31) and institutional aspects (3.08) remained relatively low. Regression analysis indicates that formal education, farming experience, access to extension services, rice field type (irrigated vs. rainfed), and land size significantly influence farmers' understanding (R^2 = 0.624). These results indicate that both internal factors (education and experience) and external factors (extension, irrigation systems, and farm size) jointly determine farmers' capacity to understand and apply commercialization concepts. Strengthening non-formal education, enhancing extension services, and supporting farmer institutions are essential to improve farmers' market orientation. Strengthened understanding of commercialization is expected to increase household welfare and contribute to sustainable agricultural development in the region.

Keywords: Farmer understanding, rice farming, commercialization, market orientation

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INTRODUCTION

Rice is a strategic food commodity in Indonesia, playing a crucial role in maintaining the country's national food security. As the staple food for the majority of the population, fluctuations in rice production and prices directly affect social, economic, and political stability (Central Statistics Agency [BPS], 2023). South Bengkulu Regency is a major rice production center in Bengkulu Province, contributing significantly to regional food security. Although harvested areas remain relatively stable, rice productivity and marketing orientation in this region remain highly diverse (Bengkulu Provincial Agriculture Office, 2022).

In the context of agricultural development, commercialization of farming is a strategic issue. Commercialization is the expansion of farmers' market participation by selling agricultural produce beyond household consumption (Carletto et al., 2017). This process is expected to increase farmer income, improve household welfare, and stimulate overall agricultural sector growth (Saha et al., 2024). However, the level of commercialization among farmers varies. These differences are influenced by factors such as business performance, market access, availability of production facilities, and farmers' understanding of market mechanisms.

Farmers' understanding plays a crucial role in determining their market orientation. Farmers who understand the concepts of commercialization, pricing mechanisms, and consumer demand dynamics will be more responsive in allocating their harvests for sale rather than for household consumption (Ogutu et

al., 2020). Conversely, limited understanding can keep farmers trapped in subsistence farming despite ample market opportunities. This often occurs in rural areas, including South Bengkulu, where some farmers still face limited access to information, low levels of formal education, and minimal extension services (Mulyani, 2017; Widiarta, 2018).

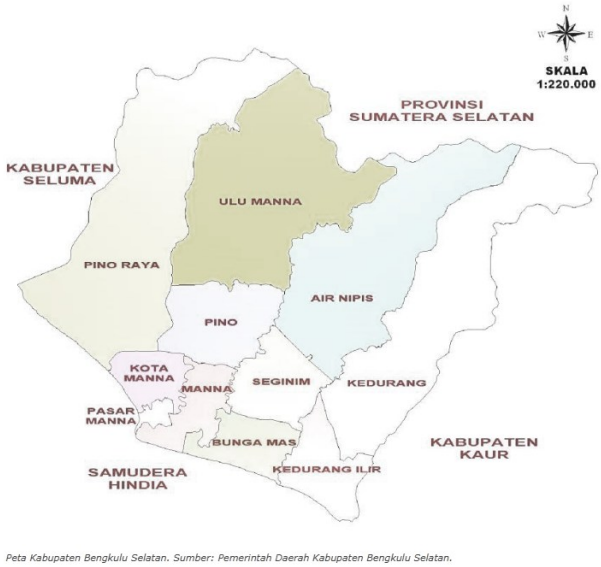
Previous research confirms that small-scale businesses, weak access to capital, and a lack of marketing institutions hinder farmers' increased commercial orientation (Sugandini et al., 2023). Commercialization, however, can be a crucial solution to reducing rural poverty, enhancing competitiveness, and improving the sustainability of agricultural systems (Neme & Tefera, 2021; Fauzan, 2024). Therefore, analyzing farmers' understanding of commercialization is crucial to determine their readiness to integrate into the market system.

Based on these conditions, this study aims to (1) analyze the level of farmers' understanding of the concept and practice of commercialization of rice farming in South Bengkulu Regency; (2) identify factors that influence farmers' understanding of commercial orientation. The results of this study are expected to provide an empirical picture of the actual conditions of rice farmers in South Bengkulu and serve as a basis for formulating a more inclusive and sustainable market-based agricultural policy strategy.

MATERIALS AND METHODS

This research was conducted in South Bengkulu Regency, a region known as one of the leading centers of rice production in Bengkulu Province, specifically in Pino and Air Nipis Districts (Figure 1). This regency has two rice farming systems that play a vital role in supporting regional food production: irrigated rice fields that receive a regular water supply through irrigation networks, and non-irrigated rice fields that rely on rainwater or other natural water sources.

The research variables include (1) farmer performance, measured through indicators of land area, productivity, input use, sales patterns, and capital sources; (2) farmer understanding of commercialization, measured through indicators of knowledge about market orientation, prices, risks, and institutions; and Data analysis was carried out using quantitative descriptive and inferential methods.



Peta Kabupaten Bengkulu Selatan. Sumber: Pemerintah Daerah Kabupaten Bengkulu Selatan.

Source: https://agrikan.id/mewujudkan-pembangunan-agropolitan-di-bengkulu-selatan/

Figure 1. Research Area

Measurements used a Likert scale with categories, namely (1) Strongly do not understand, (2) Do not understand, (3) Poor understanding, (4) Understand, and (5) Fully understand. Descriptive statistics were used to characterize the level of understanding of commercialization, with the average score and corresponding categories presented in Table 1. Multiple linear regression models were used to analyze the factors influencing farmers' understanding of commercialization in South Bengkulu Regency, involving various independent variables from previous studies, namely formal education (Lestari, et al., 2023; Persson, 2025), farming experience (Hasan & Ihsannudin, 2022), extension access (Hota, 2021), type of rice field (Satriani, et al., 2021), and land area (Lestari, et al., 2023; Persson, 2025).

Table 1. Average score for the rice farmer understanding category

Average Score	Category
1.00 – 1.80	Strongly do not understand
1.81 – 2.60	Do not understand
2.61 – 3.40	Poor understanding
3.41 – 4.20	Understand
4.21 – 5.00	Fully understand

Source: Riduwan, 2013

RESULTS AND DISCUSSION

Characteristics of rice farmers

The characteristics of rice farmers provide a general overview of the individuals in the research sample, including demographic, social, economic, and technical aspects. The purpose of this analysis is to provide a clearer understanding of the respondents' profiles and serve as a basis for analyzing the research data. The characteristics of rice farmers in this study include age, formal education, number of dependents, length of farming experience, type of rice field, and land area (Table 2).

The age distribution shows that the majority of rice farmers are aged 33–41 years (43.18%), with a mean age of 37 years (Table 2). This indicates that farmers are in their productive years and therefore still have sufficient physical labor to manage their farms. According to Soekartawi (2002), the productive age is a significant determinant of farmers' ability to adopt new technologies, with younger to middle-aged groups adapting more quickly than older ones.

The majority of respondents (53.41%) had an elementary school education, 27.27% a junior high school education, 18.18% a senior high school education, and only 1.14% a diploma/equivalent, with an average education of 8 years (Table 2). This relatively low level of education results in a limited understanding of the concepts of commercialization and modern farming management. As Mulyani (2017) states, education plays a crucial role in enhancing farmers' capacity to access information, markets, and agricultural technologies.

Most farmers have 3–4 dependents (31.82%), with an average of 3 per household (Table 2). The number of dependents influences farmers' economic needs and decisions regarding production orientation (subsistence or commercial). According to de Janvry & Sadoulet (2020), the greater the number of dependents, the greater the household's economic pressure, which encourages farmers to intensify their sales of agricultural products.

Table 2. Characteristics of rice farmers

No	Characteristics	Amount (Person)	%	Average
1	Age (Years)			
	24-32	21	23.86	
	33-41	38	43.18	37
	42-50	29	32.96	
2	Formal education			
	SD	47	53.41	
	SMP	24	27.27	
	SMA	16	18.18	8
	Diploma/Sederajat	1	1.14	
3	Household size (Person)			
	1 - 2	12	13.64	
	3 - 4	28	31.82	3
	5 - 6	15	17.04	
4	Farming experience (years)			
	1 – 10	15	17.05	
	11 – 20	54	61.36	18.9
	21 – 30	19	21.59	
5	Type of rice field			
	Irrigation	47	53.41	
	Rainfed	41	46.59	
6	Land area (hectares)			
	0.15 – 0.42	25	28.41	
	0.43 – 0.69	36	40.91	0.52
	0.70 – 1.00	27	30.68	

Source: Primary data, 2025

Respondents had extensive farming experience, with the majority (61.36%) having cultivated rice for 11–20 years, with an average of 18.9 years. This vast experience is crucial for enhancing technical skills and mitigating agricultural risks. Saha et al. (2024) noted that farming experience can improve decision-making skills, even without a high level of formal education.

Respondents managed both irrigated rice fields (53.41%) and rain-fed rice fields (46.59%). Irrigated rice fields offer more stable production opportunities because water availability is relatively guaranteed, while rain-fed rice fields are highly dependent on climatic conditions. Carletto et al. (2017) emphasized that differences in irrigation systems affect farmers' productivity and market orientation, with irrigated rice farmers tending to be more commercial than rain-fed rice farmers.

The average land area managed by farmers is 0.52 ha, with the largest share in the 0.43–0.69 ha category (40.91%). This limited land ownership is a significant obstacle to increasing production and commercialization. According to Hayami & Ruttan (1985), small-scale businesses tend to hinder economic efficiency and limit farmers' market orientation.

Farmers' Understanding of Rice Commercialization

The results of the study indicate that the level of understanding of rice farmers in South Bengkulu Regency regarding the commercialization of agricultural businesses is still in the understanding category, namely 52% (Table 3), who stated that they "understand" the basic concepts of commercialization such as the meaning of selling crops to the market, the importance of selling prices, and the benefits of increasing sales volume for family income. This suggests that rice farmers in South Bengkulu Regency are aware of the importance of market orientation in their farming practices. However, the level of understanding varies across indicators.

Table 3. Level of Farmers' Understanding of Rice Farming Commercialization

No.	Understanding Indicators	STP (%)	TP (%)	KP (%)	P (%)	SP (%)	Score Average
1	Market Orientation (the importance of selling crops, the difference between consumption and commerce)	2.27	6.82	22.73	54.55	13.64	3.70
2	Price (the effect of selling price on income & welfare)	0.00	4.55	18.18	56.82	20.45	3.93
3	Risk (price fluctuations, losses, market uncertainty)	6.82	12.50	34.09	36.36	10.23	3.31
4	Institutions (the role of farmer groups, cooperatives, partnerships with large traders)	11.36	17.05	30.68	34.09	6.82	3.08
	Overall average score	5.11	10.23	26.42	45.45	12.79	3.51 (Understand)

Source: Primary data, 2025
Information:
STP = Strongly do not understand
TP = Do not understand
KP = Poor understanding
P = Understand
SP = Fully understand

The price aspect was the indicator with the highest level of understanding (average score of 3.93). Most farmers understood that the selling price of unhusked rice and rice significantly determines household income and welfare. This finding aligns with a study by Ogutu et al. (2020), which emphasized that price is a key market signal influencing farmers' decisions to increase sales volume.

The market orientation indicator also showed a good understanding (3.70). Farmers began to understand that commercialization entails selling crops in markets, not solely for household consumption. According to Carletto et al. (2017), market orientation is the first step in integrating farmers into the broader commercial system. In contrast, the risk indicator scored an average of 3.31 (categorized as less understanding). This suggests that most farmers are not yet fully aware of the risks associated with price fluctuations and market uncertainty. However, according to Fauzan (2024), market risk is a critical determinant of smallholder farmers' participation in commercialization.

The indicator with the lowest score was institutionalization (3.08). This means farmers' understanding of the roles of farmer groups, cooperatives, or partnerships with wholesalers remains limited. This situation can be a serious obstacle to improving farmers' bargaining power. Neme & Tefera (2021) emphasized that institutionalization is a crucial factor in the success of commercialization, as it facilitates access to capital, information, and markets.

Overall, these results confirm that although farmers' understanding falls within the moderate-to-high range, efforts to improve it remain essential, particularly with respect to institutional and market risks. The role of non-formal education, intensive extension services, and strengthening farmer institutions will significantly improve farmers' understanding of commercialization (Widiarta, 2018; Mulyani, 2017).

Factors Influencing Farmers' Understanding

Multiple linear regression analysis (Table 4) indicates that formal education, length of farming experience, access to extension/information services, rice field type, and land area significantly influence farmers' understanding of rice-farming commercialization in South Bengkulu Regency. The coefficient of determination (R^2) of 0.624 indicates that these variables explain 62.4% of the variance in farmers' understanding, with other factors outside the model accounting for the remaining 37.6%. The F-test indicates that the model is significant at the 1% level ($p < 0.01$), suggesting that the independent variables collectively explain the variation in farmers' understanding.

The analysis results show that formal education has a significant positive effect on farmers' understanding. The higher the farmer's education, the better their understanding of market orientation, prices, risks, and institutions. This aligns with Mulyani's (2017) opinion, which emphasizes the crucial role of education in improving the capacity of agricultural human resources to access market and technological information.

Table 4. Result Analysis

Variable	β	Std. Error	t count	Sig.
Constant	1.215	0.482	2.52	0.014
Formal education (X1)	0.268	0.085	3.15	0.002**
Farming experience (X2)	0.143	0.067	2.13	0.035*
Extension access (X3)	0.311	0.091	3.42	0.001**
Type of rice field (X4)	0.221	0.102	2.16	0.033*
Land area (X5)	0.187	0.089	2.10	0.037*
R^2	0.624			
Adjusted R^2	0.598			
F Count	23.71			
Sig. F	0.0000			

Source: Primary data, 2025
*Sig at α 0.05
**Sig at α 0.01

Years of farming experience have also been shown to influence farmers' understanding. Long experience enables farmers to learn from market dynamics, even with limited formal education. Saha et al. (2024) noted that farming experience contributes to farmers' ability to make more rational production and marketing decisions.

The dominant external factor is access to extension services/information. Farmers who frequently participate in agricultural extension services have a better understanding of commercialization strategies. This is consistent with Widiarta (2018), who found that extension service intensity is positively correlated with farmers' level of market understanding. In other words, extension services serve not only as a means of technology transfer but also as a means of disseminating market knowledge and managing risk.

Furthermore, the type of rice field also has a significant influence. Irrigated rice farmers tend to be more aware of commercialization than rainfed rice farmers. Carletto et al. (2017) emphasized that irrigation systems enable more stable production, making it easier for farmers to allocate their produce to markets. The final factor is land size. Farmers with larger plots are more likely to understand commercialization because the scale of their operations encourages a market-oriented approach. According to Hayami and Ruttan (1985), a larger scale increases economic efficiency and strengthens farmers' commercial orientation.

Thus, farmers' understanding of commercialization is influenced not only by individual factors (such as education and experience) but also by external factors (including extension services, irrigation availability, and land area). Efforts to improve farmers' understanding should focus on strengthening non-formal educational capacity, expanding access to extension services, and developing inclusive institutions to support smallholder farmers in becoming more market-oriented.

CONCLUSION

This study reveals that rice farmers in South Bengkulu Regency have a level of understanding of commercialization in farming that falls within the "understand" category, with an average score of 3.51. The price aspect was the most understood, while the institutional and risk aspects remained relatively low. The results of the multiple linear regression analysis revealed that formal education, length of farming experience, access to extension services, type of rice field, and land area significantly influence farmers' level of understanding. This demonstrates that internal factors (education and experience) and external factors (access to information, irrigation systems, and business scale) jointly determine farmers' capacity to understand and implement commercialization orientation. Therefore, improving farmers' understanding of commercialization is a strategic step to strengthen farmer integration into the market system and encourage improved household welfare among rice farmers in South Bengkulu.

SUGGESTION

Based on the research results, several recommendations can be put forward. First, it is necessary to improve non-formal education and ongoing training through field schools, agribusiness training, and market literacy programs for farmers. Second, strengthening the role of agricultural extension workers is crucial for providing information on marketing strategies and risk management, as well as for enhancing farmer institutions. Third, local governments should encourage the development of farmer economic institutions, such as cooperatives, farmer groups, or agribusiness partnerships, to strengthen their bargaining position in the rice value chain. Fourth, policies that favor smallholder farmers are needed, particularly to provide access to credit, irrigation infrastructure, and support for production facilities, so that farmers with limited land can also be market-oriented. With these steps, it is hoped that farmers' understanding of commercialization will increase, thereby strengthening the sustainable competitiveness of rice farming in South Bengkulu Regency.

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