

The Impact of Agricultural Inputs Assistance on Paddy Farming Income in Pinrang Regency

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Abstract

This study aims to determine the farming income and the effect of assistance for production facilities on the paddy farming income in Mattombong Village, Mattirosompe District, Pinrang Regency. The population in this study were 276 rice farmers in Mattombong Village. The sampling technique used was simple random sampling, by taking 15% of the population, so that a sample of 40 rice farmers was obtained. The data collection method used was direct interviews with questionnaires, observation, and documentation. The data analysis technique was income analysis and multiple linear regression. The results of this study indicate that the paddy farming income in Mattombong Village, Mattirosompe District, Pinrang Regency is IDR 23,098,475.00 per hectare per planting season. The factors that simultaneously affect paddy farming income are land area, seed price, urea fertilizer price, phonska fertilizer price, pesticide price, labor wages, and agricultural inputs assistance. Factors that significantly influence paddy farming are land area (0.9114), seed price (-0.3859), urea fertilizer price (-7.038), and agricultural inputs assistance (0.2978). The wider the rice field, the higher the income of paddy farming. The higher the price of seeds and urea fertilizer, the lower the income of paddy farming. Agricultural inputs assistance has a significant effect on increasing income from paddy farming. Farmers who receive agricultural inputs assistance will have an increase in their paddy farming income by 0.2978 percent.

Keywords: assistance, income, paddy farming, agricultural inputs.

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INTRODUCTION

Rice is one of the most important agricultural commodities in Indonesia, both from an economic and social perspective. As a major food crop, rice plays a role in ensuring national food security and encouraging the sustainability of people's lives. The vitamins, minerals, and carbohydrates contained in rice make it an essential source of energy, as well as a very important staple food for millions of Indonesians (Amani et al., 2024; Sadali, 2018). Rice commodities not only function as staple food, but also create jobs and make significant contributions to the local and national economy (Kurniawan et al., 2024).

Agricultural production facilities include various components, including superior seeds, fertilizers, agricultural tools, and other agricultural technologies. Government assistance programs, such as those run by the Ministry of Agriculture, play an important role in supplying these production facilities to farmers. The availability and management of good production facilities can lead farmers to optimal results, both in terms of quantity and quality of rice products. The many factors involved in the rice production process, from selecting quality seeds to using the right fertilizers, affect the quality and quantity produced (Arifin, 2024; Aziz et al., 2024). In a pandemic, access to good production facilities can help farmers maintain their income despite facing major challenges (Pirsouw et al., 2022).

There is a correlation between the use of production facilities and rice farming income. The selection of superior seeds as part of production facilities is a determinant aspect in terms of farming income (Agfrianti et al., 2023). Farmers who use superior seeds with good cultivation techniques have the potential to increase crop yields. The importance of variation in the types of production facilities provided to farmers, such as fertilizers and agricultural technology, so that the highest profitability of farming can be achieved. The use of production facilities supported by government programs makes farmers more daring to plant crops with high economic value (Setiawan et al., 2022).

The success of the implementation of production facilities depends not only on their availability, but also on good management and support from the government and related institutions. The success of the production facility assistance program requires synergy between all stakeholders, including training, market access, and technical assistance (Aldillah, 2019). Adaptation of the use of modern technology and methodology in agriculture is essential so that farmers can remain competitive and obtain optimal results (Dewi et al., 2024).

Good production facilities also include the use of adequate agricultural tools and machinery. The application of modern technology in agriculture, such as the use of

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harvesting and spraying machines, has been shown to contribute to the efficiency of the rice production process. Research shows that modern agriculture assisted by agricultural machinery can significantly increase productivity (Hantoro, 2021; Baiti et al., 2023). Therefore, equitable distribution and training in the use of agricultural tools must be one of the focuses of policies to support farmers (Prihantini & Lutfiyanto, 2019).

Pinrang Regency is one of the rice production centers in South Sulawesi Province. Agricultural production facility assistance (saprodi) in this region includes agricultural machinery assistance in the form of water pumps and tractors, as well as assistance in the form of superior rice seeds and subsidized fertilizers. This study aims to analyze the income of lowland rice farming, and to analyze the effect of agricultural production facility assistance (saprodi) on the income of lowland rice farming in Mattombong Village, Mattirosompe District, Pinrang Regency.

RESEARCH METHODS

This research was conducted in Mattombong Village, Mattirosompe District, Pinrang Regency, South Sulawesi Province. This location was chosen because Pinrang Regency is one of the rice production centers in South Sulawesi. This research was conducted from September 2024 to November 2024.

The population in this study were 276 rice farmers in Mattombong Village. The sampling technique used was simple random sampling, by taking 15% of the population, so that a sample of 40 rice farmers was obtained. The type of data is quantitative data, which comes from primary and secondary data. Primary data was obtained from direct interviews with rice farmers using questionnaires, while secondary data was obtained from websites and institutions closely related to this research study (Central Statistics Agency and Agriculture Service). The data collection methods used were direct interviews with questionnaires, observation, and documentation.

Data analysis techniques were income analysis and multiple linear regression.

1. Rice Farming Income Analysis

$$I = TR - TC$$

$$TR = P \times Q$$

$$TC = FC + VC$$

Description: I = income (IDR), TR = total revenue (IDR), TC = total cost (IDR),

P = price (IDR/kg), Q = quantity (kg)

FC = fixed cost (IDR), VC = variable cost (IDR)



2. Multiple Linear Regression Analysis

$$\ln Y = \alpha_0 + \alpha_1 \ln X_1 + \alpha_2 \ln X_2 + \alpha_3 \ln X_3 + \alpha_4 \ln X_4 + \alpha_5 \ln X_5 + \alpha_6 \ln X_6 + D_1 + e$$

Description:

Y = rice farming income (IDR)

X₁ = land area (ha)X₂ = rice seed price (IDR/kg)X₃ = urea fertilizer price (IDR/kg)X₄ = phonska fertilizer price (IDR/kg)X₅ = pesticide prices (IDR/liter)X₆ = labor wages (IDR/working people day)D₁ = dummy variable (1 = recipient of agricultural input assistance, 0 = not recipient of agricultural input assistance) α_0 = intercept $\alpha_1 - \alpha_6$ = regression coefficient

e = error term

RESULTS AND DISCUSSION**Paddy Farming Income**

Rice farming income is influenced by various production factors that play a significant role in determining the results and efficiency of the farming business. Among these factors, land area, seed price, fertilizer price, pesticide price, and labor wages are important factors that affect rice farming income. Research shows that each factor has a specific role and impact on the productivity and income generated by farmers.

The production of lowland rice farming in Mattombong Village, Mattirosompe District, Pinrang Regency reached an average of 5.76 tons per hectare per planting season, with a revenue value of Rp 36,188,195.00 per hectare per planting season. The highest input cost of lowland rice farming production is the expenditure for pesticides, which is Rp 1,768,863.00 per hectare per planting season, while the lowest input cost is urea fertilizer, which only reaches Rp 552,916.00 per hectare per planting season. Labor costs for lowland rice farming have the highest contribution to total costs, especially for harvesting costs which reach Rp 4,054,608.00 per hectare per planting season (Table 1).



Table 1. Production, Costs, and Income of Paddy Farming in Mattirosompe District, Pinrang Regency

Description	Quantity (units)	Price per unit (IDR)	Value (Rp)
1. Production (kg)	5.760	6.283	36.188.195
2. Variable Costs (IDR):			12.820.473
- Paddy seeds (kg)	98,9	6.577	650.508
- Urea fertilizer (kg)	196	2.821	552.916
- Pupuk phonska (kg)	184,7	3.077	568.322
- Pesticides (liter)	8,1	218.378	1.768.863
- Labor Wages (IDR)			9.279.864
Land cultivation (WPD)	20	100.000	2.000.000
Planting (WPD)	13,9	136.519	1.897.611
Fertilization (WPD)	4,8	68.259	327.645
Harvesting (WPD)	9,9	409.556	4.054.608
Transportation (WPD)	13	76.923	1.000.000
3. Fixed costs (IDR)			269.247
- Tool depreciation			253.480
- Farm taxes			15.767
4. Farming Income			23.098.475

Source: Primary Data Analysis, 2025.

The lowest labor cost is fertilization which is only Rp 327,645.00 per hectare per planting season. The total labor cost incurred for paddy farming each planting season is Rp 9,279,864.00 per hectare. The total variable cost in paddy farming reaches Rp 12,820,473.00 per hectare per planting season, while the fixed cost is only Rp 269,247.00 per planting season, so the total cost is Rp 13,089,720.00 per hectare per planting season. Thus, the income of paddy farming in this area averages Rp 23,098,475 per hectare per planting season.

The Influence of Agricultural Input Assistance on Paddy Farming Income

The level of farm income is basically determined by price factors, both input prices and output prices. Factors that are thought to influence the income of rice farming in Mattirosompe District, Pinrang Regency include land area, rice seed price, urea fertilizer price, phonska fertilizer price, pesticide price, labor wages, and agricultural production

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facility assistance. Agricultural production facility assistance provided by the government to farmers in Pinrang Regency includes agricultural machinery (water pumps and tractors), as well as assistance in the form of superior rice seed varieties.

Factors including land area, rice seed price, urea fertilizer price, phonska fertilizer price, pesticide price, labor wages, and dummy assistance for agricultural inputs simultaneously have a significant effect on rice farming income in Mattirosompe District, Pinrang Regency. This can be proven from the significance of the determination coefficient (R^2) value, which is 0.9538 (95.38%), meaning that all independent variables analyzed have a real effect of 95.38 percent at a confidence level of 99%, and the remaining 4.62 percent is influenced by other factors not examined in this study.

Based on the results of the partial test analysis (t-test), the factors that are proven to significantly influence the income of rice farming businesses are land area, rice seed price, urea fertilizer price, and assistance for agricultural inputs. The land area variable has a positive and significant effect at a 99% confidence level on rice farming business income with a coefficient value of 0.9114. This means that if the land area increases by one percent, the income of rice farming businesses will increase by 0.9114 percent. The rice seed price variable has a negative and significant effect at a 90% confidence level on rice farming business income with a coefficient value of -0.3859. This means that if the price of rice seeds increases by one percent, the income of rice farming businesses will decrease by 0.3859 percent.

Table 2. Factors Affecting of Paddy Farming Income in Mattirosompe District, Pinrang Regency

Variable	Coefficient	T statistic	Prob.
Land area	.911369***	6.175583	0.0000
Rice seed price	-0.385942*	-1.711489	0.0967
Urea fertilizer price	-7.037974**	-2.397151	0.0225
Phonska fertilizer price	-0.439045	-0.255671	0.7998
Perticide price	-0.919191	-0.779534	0.4414
Labor wages	-0.576148	-0.467574	0.6433
Dummy assistance	0.297828**	2.634121	0.0129
Intercept	95.87143***	3.263236	0.0026
Coefficient of Determination (R2)	0.953839***		
*** = significant ($\alpha = 0,01$) ** = significant ($\alpha = 0,05$) * = significant ($\alpha = 0,10$)			



$$\text{LNY} = 95.8714 + 0.9114 \cdot \text{LNX1} - 0.3859 \cdot \text{LNX2} - 7.0380 \cdot \text{LNX3} - 0.4391 \cdot \text{LNX4} - 0.9192 \cdot \text{LNX5} - 0.5762 \cdot \text{LNX6} + 0.2978 \cdot \text{D1}$$

Source: Primary Data Analysis, 2025.

The increase in land area is directly proportional to the increase in rice farming income, because the capacity of a larger land area can produce more rice (Simanjuntak et al., 2021). Land area has a significant effect on income, because with a larger area, farmers can plant more rice, and reduce fixed costs per unit of rice yield (Agfrianti et al., 2023). The wider the land managed, the higher the potential income for farmers (Selmi et al., 2022).

Fluctuations in seed prices affect farmers' decisions in choosing rice varieties, which will have an impact on production and income. Better production is produced from quality seeds that can increase productivity (Annas et al., 2021). Thus, superior seeds play an important role in increasing income, because good seed quality can increase the harvest obtained (Kaswati & Yuliawati, 2019).

The variable of urea fertilizer price has a negative and significant effect at a 95% confidence level on the income of rice farming businesses with a coefficient value of - 7.0379. This means that if the price of urea fertilizer increases by one percent, the income of rice farming businesses will decrease by 7.0379 percent. The variable of urea fertilizer price is the most important factor in influencing the income of rice farming businesses, because its value is the highest. Urea fertilizer is the most important input in rice farming businesses, so the price received by farmers is the price of subsidized fertilizer.

Fertilizer prices are an important consideration in assessing rice farming income, as higher fertilizer costs can reduce the net profit of the farm (Wardani & Yani, 2022). Fertilizer is needed to increase production yields, and if fertilizer prices increase without being offset by an increase in commodity selling prices, this can reduce farm income. Fertilizer costs and other production costs must be managed properly so as not to have a negative impact on income (Seprianti et al., 2023).

Agricultural input assistance has a positive and significant effect at a 95% confidence level on rice farming income with a coefficient value of 0.2978. This means that agricultural input assistance will increase rice farming income by 0.2978 percent. Thus, agricultural input assistance is one of the important factors in increasing rice farming income, so that farmers still expect the sustainability of agricultural input assistance to continue to increase household income and food security.



Agricultural production facility assistance is expected to not only stop at providing tools and machines, but also involve continuous assistance, education, and increasing the availability of innovative technology for rice farmers. This holistic approach can encourage the sustainability of rice farming and improve the welfare of farmers throughout Indonesia (Harahap & Pahrijal, 2023; Putra & Walmi, 2020).

CONCLUSION

The income of rice farming in Mattombong Village, Mattirosompe District, Pinrang Regency is Rp 23,098,475.00 per hectare per planting season. Factors that simultaneously affect rice farming income are land area, seed price, urea fertilizer price, phonska fertilizer price, pesticide price, labor wages, and agricultural facility assistance. Factors that significantly affect rice farming are land area (0.9114), seed price (-0.3859), urea fertilizer price (-7.038), and agricultural facility assistance (0.2978). Land area has a positive effect on rice farming income, meaning that if the land area increases by one percent, the income from rice farming will increase by 0.9114 percent. The wider the rice field, the higher the income from rice farming.

The price of rice seeds has a negative effect on rice farming income, meaning that if the price of rice seeds increases by one percent, the income from rice farming will decrease by 0.3859 percent. The price of urea fertilizer has a negative effect on the income of rice farming businesses, meaning that if the price of urea fertilizer increases by one percent, the income of rice farming businesses will decrease by 7.0379 percent. The higher the price of seeds and urea fertilizer, the lower the income of rice farming businesses. Agricultural facility assistance has a significant effect on increasing income from rice farming businesses. Farmers who receive agricultural facility assistance will experience an increase in rice farming income of 0.2978 percent.

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