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Research Article

Analysis of the Determination of Production Costs in Rice Farming in Padas Village, Tanon District

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Abstract

The agricultural sector is very helpful for the people's economy in the business world in accounting science to calculate the cost of production with careful calculations will provide benefits to minimize losses that can occur, and can cultivate the calculation of crop production, fertilizer and drug costs, capital interest, equipment depreciation, labor costs, in this study, the method used is purposive sampling with the consideration that the rice production area of the Padas village area with the Research Hamlet is Concluded as follows: The largest total cost expenditure in this study per hectare is the highest in Sukorjo Hamlet Rp. 29,895,118 while the smallest cost expenditure is 1 while the highest price of rice is Dadapan Rp. 6,127 while the lowest price is Rp. 2,341. The limitations of the research from the variables I use are only Padas Village, maybe the research can do many variables.

Keywords: Production Costs, Prices, Farming Business.

INTRODUCTION

Indonesia is one of the countries with abundant agricultural resources, which facilitate the cultivation of various crops such as rice, soybeans, maize, peanuts, groundnuts, cassava, and sweet potatoes. In addition to food crops, the agricultural sector also produces export-oriented commodities that contribute significantly to national income, including tea, coffee, coconut, cinchona, cloves, sugarcane, and

rubber.

The agricultural sector plays an important role in Indonesia's economy, contributing approximately 13.28% to the national economy, with food crops contributing around 1.56%, including 0.56% from staple food production. Among food crops, rice is the most widely cultivated and easily processed commodity, serving as the main staple food for the Indonesian population in the form of rice for daily consumption. Fluctuations in rice prices are strongly influenced by regional agricultural production levels, market demand, and government policies. Appropriate and stable pricing policies are essential to prevent losses for farmers, improve farmer welfare, and support the sustainability of the agricultural sector.

Therefore, it is crucial for farmers and agricultural stakeholders to understand the determination of production costs. Accurate calculation of production costs enables better pricing decisions, more efficient production planning, and clearer estimation of potential profits and losses in rice farming activities.

This study focuses on examining the affordability of rice prices in relation to product quality, as well as assessing price suitability based on perceived benefits and farmers' and consumers' purchasing power, in order to ensure fair pricing and sustainable agricultural income.

LITERATURE REVIEW

Previous Studies

(Lelet et al., 2019) conducted a study entitled Income Analysis of Lowland Rice Farming Based on Profit-Sharing Systems in Wolaang Village, East Langowan District, Minahasa Regency. The results showed that the income received by land-owning farmers amounted to IDR 13,462,500, while tenant farmers earned a lower income of IDR 9,940,865.

A study by (Kolamban et al., 2024) entitled Determination of Rice Production Costs in Imandi Subdistrict, East Dumoga District, Bolaang Mongondow Regency found that the total production cost of all respondents was IDR 270,095,155, with total rice production reaching 39,452 kg. Thus, the cost of goods sold for rice in Imandi Subdistrict was IDR 6,846 per kilogram.

(Katiandagho et al., 2018), in a study entitled Income Analysis of Lowland Rice Farming (Oryza sativa L.) in Kauditan I Village, Kauditan District, North Minahasa

Regency, reported that the average income of respondent farmers was IDR 31,849,420, while average income based on land area was IDR 18,780,342. The R/C ratio exceeded 1, reaching 2.47, indicating that the farming activity was economically feasible.

(Gayatri, 2013) examined Determination of Product Selling Prices Using the Cost Plus Pricing Method at PT Pertani (Persero), North Sulawesi Branch. The findings revealed significant price differences for several rice seed varieties—Ciherang, Mekongga, and Inpari 13—because the company did not proportionally allocate labor costs, variable overhead costs, and profit. By applying the cost plus pricing method, the selling prices of rice seed varieties ranged from IDR 6,000 to IDR 12,000 per kilogram due to proportional cost allocation based on production volume.

(Ngangi, 2011), in their study Determination of Rice Production Costs in East Kotamobagu District, Kotamobagu City, found that the average cost of rice production was IDR 4,961.56 per kilogram. Among the sampled subdistricts, Moyag had higher production costs than Kobo Kecil, primarily due to higher production expenses.

Farming Business

Agricultural industry refers to a production process that utilizes raw inputs such as rice seeds, starting from cultivation and harvesting through post-harvest processing to generate added value. Farming activities encompass the entire agricultural process, including the provision of production inputs, cultivation, post-harvest handling, processing, and marketing of products to consumers, as well as supporting services related to agriculture.

According to (Dadi, 2024), farming is an integrative effort involving interactions among humans, plants, and animals. Therefore, farm management studies relate to various aspects, including social, chemical, and economic dimensions, and are approached from multidisciplinary perspectives such as agronomy, animal nutrition, economics, and social sciences.

(Wahyudi & Panggabean, 2017) defines farming as an analytical tool used to assess the financial condition of an agricultural project. A farming project is considered an investment activity conducted on a specific land area over a defined period—generally one year—using a particular set of production inputs.

(Waluyo, 2024) explains that farming is a series of agricultural activities aimed primarily at producing agricultural products that meet food, economic, and social needs.

These activities include crop cultivation, livestock farming, and horticulture. Based on these explanations, farming can be understood as an agricultural sector activity that involves production processes from cultivation and maintenance to harvest and production readiness.

Price

According to (Mujito, 2025), selling price refers to consumers' purchasing power while considering incurred costs, targeted profits, competitors' prices, and market changes. Price represents the amount of money consumers must pay to obtain a product or service. Pricing is one of the most sensitive aspects of the marketing mix because it directly affects consumers' perceptions of product value.

(Meithiana, 2019) defines price as a value expressed in monetary terms, commonly in Indonesian rupiah. In another context, price is the amount paid by buyers and serves as a means for sellers to differentiate their offerings from competitors. Therefore, pricing can be considered part of a product differentiation strategy in marketing.

(Sampe et al., 2023) state that price is the second element of the marketing mix and involves determining the price of products or services offered. Companies must consider production costs, market demand, competitors' prices, pricing strategies, and sales volume when setting product prices.

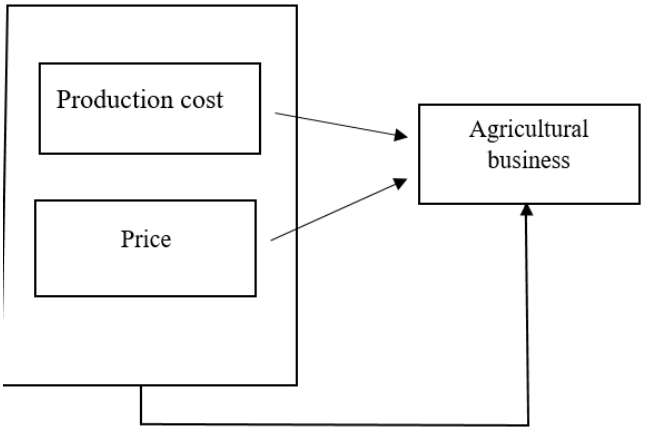
METHOD

Research Object

This study applies a survey method. According to Sudaryo (2019), a survey is a research approach used to measure or estimate phenomena through observations based on respondents' answers, either orally or in writing, without controlling the research situation. (Terimajaya et al., 2024) explain that survey research is suitable for studies with large populations and relatively small samples, where information is collected through structured questions and obtained from samples rather than the entire population. (Saifulloh, 2022) add that survey research aims to obtain a comprehensive understanding of the research object and differs from experimental and case study methods.

Based on these definitions, this study uses a survey method to describe various

aspects of the research object. Primary data were collected directly from rice farmers through interviews, while secondary data were obtained from observations in Padas Village, Tanon District, Sragen Regency. The research location was selected using purposive sampling because the village has one of the highest agricultural incomes in Tanon District. Data collection was conducted through random interviews with farmers, and the study focuses on determining the cost of production in rice farming in Tanon District, Sragen Regency, for the period of October 2023–2024.



A total of 80 samples were used in this study, determined using a specific sampling formula. Data were collected through interviews with relevant respondents using the purposive sampling method. According to (Yanti et al., 2024), purposive sampling is a sampling technique based on specific considerations aligned with research objectives. (Dedeng Irawan, 2025) define purposive sampling as a method in which samples are selected because they possess particular attributes relevant to the study, and it is more effective for relatively small and homogeneous populations. Similarly, (Mohamad Rizan et al., 2022) states that purposive sampling relies on the researcher's judgment in selecting samples and is commonly applied in qualitative research.

Based on these definitions, purposive sampling in this study refers to selecting respondents according to the specific objectives of the research. The sample size was determined using the following formula (Novrianti et al., 2022):

$$n = \frac{N}{N(d)^2}$$

where n is the number of samples, N is the farmer population, and d is the precision level (15%).

The variables measured in this study include cultivated land area (hectares) and farming costs, such as fertilization, labor, taxes, land rent, capital interest, and equipment depreciation. Depreciation cost was calculated using the following formula (Novrianti et al., 2022):

$$I = \frac{b - s}{n}$$

where I is depreciation cost, b is purchase price, s is residual value, and n is economic life. The cost of goods sold (COGS) for rice was calculated as follows:

$$\text{COGS} = \frac{\text{Total cost (IDR)}}{\text{Total production (kg)}}$$

RESULT AND DISCUSSION

Agricultural Land Area

The area of rice fields for agriculture is essential to achieve the desired agricultural output. This research, conducted through interviews with farmers, determined the area of rice fields as follows:

Table 1. Research rice field data

No	Ward	Area (Ha)
1	Dukuh kricak	1, 5 hectares
2	Dukuh Karangturi	4 hectares
3	Dukuh Jumeneng	4 hectares
4	Dukuh Padas	3 hectares
5	Dukuh Metuk	2 hectares
6	Dukuh Dadapan	3 hectares
7	Dukuh Sukorjo	2 hectares

Source: Data Processing 2023

Crop Yields

Rice yields in Padas Village vary depending on the hamlet. This is influenced by many factors, including the type of care, fertilization, pest and disease control, and the permanent harvesting process. The total rice yield can be seen in the following table:

Table 2. Research rice field data

No	Ward	Production (kg)
1	Dukuh kricak	2450 Kg
2	Dukuh Karangturi	4567 Kg
3	Dukuh Jumeneng	5674 Kg
4	Dukuh Padas	5798 Kg
5	Dukuh Metuk	5798 Kg
6	Dukuh Dadapan	7869 Kg
7	Dukuh Sukorjo	7981 Kg

Source: Data Processing 2023

Fertilization and Medications

Fertilization can rapidly increase crop yields. Fertilizers such as urea, potassium chloride (KCl), and TSP, organic fertilizers, and supplements, along with fungicides and herbicides, are used to eradicate rice leaf spot diseases. The costs of fertilizers and medications used in this study are as follows:

Table 3. Fertilization and Medicines

Ward	Fertilizer (Rp)	Pesticides (Rp)	Herbicide (Rp)
Dukuh kricak	678000	78900	89600
Dukuh Karangturi	457880	85740	54670
Dukuh Jumeneng	45680	84570	84670
Dukuh Padas	75482	45714	86748
Dukuh Metuk	75483	45670	45670
Dukuh Dadapan	89671	45670	89210
Dukuh Sukorjo	87910	45879	45782

Source: Data Processing 2023

Tax

The amount of tax paid by farmers is determined by the land area and the tax costs incurred, as determined by our survey results.

Table 4. taxes

No	Ward	Tax fee (Rp)
1	Dukuh kricak	125150
2	Dukuh Karangturi	113450
3	Dukuh Jumeneng	321581
4	Dukuh Padas	431578
5	Dukuh Metuk	123478
6	Dukuh Dadapan	451678
7	Dukuh Sukorjo	124571

Source: Data Processing 2023

Land Lease

The results of the survey showed that respondents in the study owned their own land, while others rented it, amounting to Rp 420,000,000.

Interest on Capital

The interest on capital in the study, based on bank interest, was 6%, with the average interest rate for rice farming businesses in the following rice fields:

Table 5. Interest on Farming Business Capital

No	Ward	Bank Tax Fee (Rp)
1	Dukuh kricak	345600
2	Dukuh Karangturi	245810
3	Dukuh Jumeneng	245800
4	Dukuh Padas	124501
5	Dukuh Metuk	132450
6	Dukuh Dadapan	461571
7	Dukuh Sukorjo	213485

Source: Data Processing 2023

Equipment Depreciation

The equipment used in cash rice farming operations will require improvements in both economic and performance aspects over the long term due to depreciation.

Labor

Labor is the most important workforce on a large-scale business managed by a farming family. Because family labor plays a crucial role in smallholder farming, it requires extra attention. Labor outside the farming family generally works outside the farming family (Indonesia, 2004).

Salaries are paid per day. The honorarium is provided to workers to assess how much they can provide prompt service and to calculate the amount of work required to achieve optimal performance. The labor costs per hectare in this study are as follows:

Table 6. Total Labor Costs

Activity	Dukuh kricak	Dukuh Karangturi	Dukuh Jumeneng	Dukuh Padas	Dukuh Metuk	Dukuh Dadapan	Dukuh Sukorjo
1	5.854.421	2.315.124	4.217.512	5.214.121	451.321	421.120	421.564
2	6.781.420	3.451.271	5.671.216	5.124.124	421.142	465.120	421.751
3	4.567.801	3.721.341	4.617.241	4.214.124	312.564	124.470	541.852
4	4.012.467	4.231.427	4.423.214	4.314.124	312.412	324.456	617.230
5	4.701.745	4.231.427	4.312.214	7.481.342	421.534	431.567	741.457
Total	25.917.854	17.950.590	23.241.397	26.347.835	1.918.973	1.766.733	2.743.854

Source: Data Processing 2023

Description

1 = Nursery Activities

2 = Land Cultivation Activities

3 = Maintenance Activities

4 = Harvest Activities

5 = Post-Harvest Activities

Transportation Costs

Regarding shipping costs, the rice milling facility has been included in the cost.

Cost of Goods Sold of Rice

(Muni et al., 2025) Cost of goods sold is the goods available for sale minus the ending merchandise inventory. Cost of goods sold can also be calculated from the beginning merchandise inventory plus purchases.

(Usman, 2023) Implicit production costs are costs actually incurred by the company and are usually recorded in accounting for actual use and are usually recorded in accounting for use in the production process. Examples include labor costs, building rent, equipment, and others. Implicit costs are estimates of the costs incurred on production factors owned by the company itself.

Table 7. Explicit Costs in Research Per Hectare

Dukuh Kricak	Dukuh Karangturi	Dukuh Jumeneng	Dukuh Padas	Dukuh Metuk	Dukuh Dadapan	Dukuh Sukorjo
27.580.705	1.203.360	28.608.805	2.091.884	29.164.006	3.691.255	29.895.118

Cost of Goods Sold of Rice

Ward	Basic Price of Rice (Rp)
Dukuh Kricak	6.331
Dukuh Karangturi	6.231
Dukuh Jumeneng	6.361
Dukuh Padas	5.231
Dukuh Metuk	4.567
Dukuh Dadapan	6.567
Dukuh Sukorjo	5.764

Source: Data Processing 2023

Based on the results of the research data processing, the highest cost of goods sold was obtained. For example, Kricak Hamlet (Rp 6,331), Karangturi Hamlet (Rp 6,231), Jumeneng Hamlet (Rp 6,361), Padas Hamlet (Rp 5,231), Metuk Hamlet (Rp 4,567), Dadapan Hamlet (Rp 6,567), and Sukorjo Hamlet (Rp 5,764).

The cost of goods sold for rice can be calculated solely based on explicit costs by subtracting the total costs incurred from the production costs.

Table 8. Explicit Costs in Research Per Hectare

Ward	Basic Price of Rice
Dukuh Kricak	3.345
Dukuh Karangturi	5.274
Dukuh Jumeneng	3.421
Dukuh Padas	2.341
Dukuh Metuk	5.317
Dukuh Dadapan	6.127
Dukuh Sukorjo	3.312

Source: Data Processing 2023

From the above conclusions, the basic price of rice for each sub-district was Rp 6,127, the highest in Dukuh Dadapan.

CONCLUSION

This study concludes that the highest total production cost per hectare was found in Dukuh Sukorjo, amounting to IDR 29,895,118, while the lowest production cost was recorded in another area of Padas Village. In terms of rice prices, the highest selling price was observed in Dadapan at IDR 6,127 per kilogram, whereas the lowest price was IDR 2,341 per kilogram.

A limitation of this study is that the analysis was restricted to variables observed in Padas Village only. Therefore, future research is recommended to include a wider range of variables and study areas in order to obtain more comprehensive and generalizable results.

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