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COMPARATIVE ANALYSIS OF INCOME BETWEEN SALES IN THE FORM OF DRY MILLED GRAIN (GKG) AND RICE TO RICE FARMERS IN SUNGAI KAKAP DISTRICT, KUBU RAYA REGENCY

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Abstract

Dry-milled paddy (GKG) and milled rice represent different forms of harvested rice crops. The distinct processes involved in producing GKG and milled rice result in variations in revenue and production costs for each, consequently affecting farmers' incomes. This study compares the income of rice farmers who sell either dry milled paddy (GKG) or milled rice. The research was quantitative and was conducted in Sungai Kakap District, Kubu Raya Regency, specifically in Pal IX Village and Sungai Itik Village. This study applied income analysis and a one-tailed independent samples t-test. The findings reveal that the average income of rice farmers selling dry milled paddy (GKG) was IDR 21,105,984/Ha, while the average income of rice farmers selling milled rice was IDR 22,856,137/Ha. The income difference test results show that the significance value (1-tailed) is less than the significance level (0.000 < 0.05), leading to the rejection of H0 and acceptance of H1. This statistic confirms that the income of rice farmers selling milled rice is significantly greater than the income of rice farmers selling dry milled paddy (GKG).

Keywords: *Dry Milled Paddy (GKG), Income, Milled Rice, Rice Farmers*

1. INTRODUCTION

West Kalimantan is one of the Indonesian provinces where the population primarily cultivates lowland rice. According to the 2023 West Kalimantan Statistics Agency (BPS) report, there has been a decline in milled area and rice production, from 241.48 thousand hectares in 2022 to 224.07 thousand hectares in 2023. Total rice production also decreased from 731.23 thousand tons in 2022 to 700.29 thousand tons in 2023. Kubu Raya Regency is a rice-producing regency located in West Kalimantan province, with a land area of 8,492.1 km2. Geographically, Kubu Raya Regency borders directly with Pontianak City, so this close location makes Kubu Raya have a role as a buffer zone for Pontianak City, especially in terms of providing resources, city needs, and distributing agricultural products to be more efficient. (Hajeri et al., 2015). Kubu Raya Regency has 9 sub-districts, one of which is Sungai Kakap Sub-district, which has a rice planting area of 6,582 ha.

In the process of rice cultivation according to Siregar & Sulardi, (2019) , farmers start from seed selection, nursery, land cultivation, planting, fertilization, plant protection, then milling to produce

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grain until the post-milling stage the grain is dried which is called Milled Dry Grain (GKG) and then sold directly but there are also farmers who do not directly sell rice in the form of milled dry grain (GKG) but these farmers carry out further post-harvest activities namely the milling process, packaging, storage and the final stage is the sale of rice (Fahroji et al., 2014). According to Mahmud et al. (2021), rice farmers tend to sell their harvests in the form of dry milled grain (GKG) due to urgent cash needs, a condition that is also prevalent in various international agricultural contexts (Saliem et al., 2024; Tirkaso & Hailu, 2021). Furthermore, selling rice in the form of unhusked rice is considered easier, faster, and more cost-effective than selling rice, which must first go through a milling process, thus requiring higher processing costs. Furthermore, selling rice in the form of unhusked rice has the potential to add greater value for farmers, allowing them to immediately enjoy profits not available from selling only unhusked rice. (R & Windhani, Supadi, 2019).

The current price of dry milled grain (GKG) in Sungai Kakap District is around 7,500/kg, while rice is sold for 13,000/kg. The process of processing dry milled grain (GKG) into rice requires a rice milling machine. The type of rice milling in Sungai Kakap District is RMU (*Rice Milling Unit*). RMU (*Rice Milling Unit*) is an agricultural machine that functions to remove the husk of grain so that it becomes rice. RMU consists of a series of milling units, consisting of a peeling unit, a polisher, and a chaff separator. (Nofriadi, 2012). The availability of RMU (*Rice Milling Unit*) in Sungai Kakap District is 3 RMU with a capacity to produce 12 tons/month. 2 RMU (*Rice Milling Unit*) are located in Pal IX Village, and 1 RMU is located in Sungai Itik Village with a milling cost of around 300/kg. Farmers' decisions in choosing to sell rice in the form of dry milled grain (GKG) or rice will certainly affect the size of their income. Selling rice in the form of dry milled grain (GKG) and in the form of rice each has its own advantages and disadvantages. This study needs to be conducted to compare the income of rice farmers who sell dry milled grain (GKG) and rice so that it is hoped that the results of this study can be a reference for increasing the income of rice farmers in Sungai Kakap District in the future. While previous studies have broadly compared farmer incomes, this research contributes to the existing literature by specifically dissecting the detailed post-harvest cost structures at the smallholder level, which is essential for improving market competitiveness (Abass et al., 2023). It addresses a critical research gap by examining how institutional limitations and the urgent need for liquidity influence farmers' marketing decisions, despite the clear economic advantages of value addition and more efficient marketing channels (Magesa et al., 2023). Thus, this study provides a more robust academic discourse on agricultural supply chains and farmer welfare in tidal land areas.

In connection with this, the researcher is interested in researching the topic entitled "Comparative Analysis of Income between Sales in the Form of Dry Milled Grain (GKG) and Rice for Rice Farmers in Sungai Kakap District, Kubu Raya Regency".

2. METHOD

This study is designed as a quantitative survey with a cross-sectional approach to analyze and compare the income of farmers selling dry milled grain (GKG) and rice.

2.1 Location and Time of Research

The research was conducted in Sungai Kakap District, Kubu Raya Regency, specifically in Pal IX Village and Sungai Itik Village. The location of this research was chosen intentionally (purposive) by the researcher,

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consideration that this research requires farmers who sell rice in the form of dry milled grain (GKG) and farmers who sell rice in the form of rice, and this location was chosen because of the availability of RMU (*Rice Milling Unit*). The research was carried out in November 2024.

2.2 Population and Sample

The population in this study consisted of 898 rice farmers in Pal IX and Sungai Itik villages, comprising 584 dry milled grain (GKG) farmers and 314 rice farmers. The sample size was determined using the Slovin formula with a 10% margin of error, resulting in 90 respondents. These respondents were selected using a proportional stratified random sampling technique to ensure representative data from both groups, yielding 58 GKG farmers and 32 rice farmers.

2.3 Data Collection Sources and Methods

This study used primary and secondary data sources. The primary data sources were rice farmers selling dry milled grain (GKG) and rice farmers in Sungai Kakap District, Kuburaya Regency. Secondary data sources included previous research, books, and journals. Data collection methods included observation, questionnaires, interviews, literature studies, and documentation.

2.4 Data Analysis

To find out how much income farmers who sell dry milled grain (GKG) and farmers who sell rice in Sungai Kakap District, Kuburaya Regency, use an income analysis with the following income formula (Soekartawi, 1993).

2.4.1 Revenue (TR)

$$\boldsymbol{TR_i = P_i\, x\, Q_i}$$

Information :

TR_1 : Total revenue for dry milled grain (GKG) (IDR/ha)

TR_2 : Total revenue for rice (IDR/ha)

P_1 : Selling price of dry milled grain (GKG) (IDR/kg)

P_2 : Selling price of rice (IDR/kg)

Q_1 : Production of dry milled grain (GKG) (kg)

Q_2 : Production of rice (kg)

2.4.2 Production Cost (TC)

$$\boldsymbol{TC_i = VC_i + FC_i}$$

Information :

TC_1 : Total production costs for dry milled grain (GKG) (IDR/ha).

TC_2 : Total production costs for rice (IDR/ha).

VC_1 : Variable costs for dry grain production milled (GKG) (IDR/ha). The variable costs in the production of dry milled grain (GKG) in this study include: seed costs (IDR/ha), fertilizer

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costs (IDR/ha), pesticide costs (IDR/ha), labor costs (HOK/ha), and threshing costs (IDR/ha).

VC_2 : Variable costs in for rice (IDR/ha). the form of rice include: seed costs (IDR/ha), fertilizer costs (IDR/ha), pesticide costs (IDR/ha), labor costs (HOK/ha), threshing costs (IDR/ha), milling service costs (IDR/ha), and packaging costs (IDR/ha).

FC_1 : Fixed costs in the production of dry milled grain (GKG) (IDR/ha). The fixed costs in the production of dry milled grain (GKG) in this study include: depreciation costs for tools such as sickles, hoes, and sprayers (IDR/ha).

FC_2 : Fixed costs in the production of rice (IDR/ha). The fixed costs in the production of rice in this study include: depreciation costs for tools such as sickles, hoes, and sprayers (IDR/ha).

2.4.3 Income (I)

$$\boldsymbol{I_i = TR_i - TC_i}$$

Information :

I_1 : Income of dry milled grain (GKG) (IDR/ha)

I_2 : Income of rice (IDR/ha)

TR_1 : Total revenue for dry milled grain (GKG) (IDR/ha)

TR_2 : Total revenue for rice (IDR/ha)

TC_1 : Total production costs for dry milled grain (GKG) (IDR/ha).

TC_2 : Total production costs for rice (IDR/ha).

2.5 Hypothesis Testing

Furthermore, to test the hypothesis in this study, the One-Tailed Independent Sample t-test will be used. This specific test was chosen based on the theoretical assumption that post-harvest processing (milling) adds value to the product, thereby expectedly generating greater returns than selling raw grain. Therefore, a one-tailed test is more appropriate than a two-tailed test to specifically examine the hypothesis that rice income is significantly higher than GKG income. The sig. value (1-tailed) is obtained by dividing the sig. value (2-tailed) by two. Hypothesis testing will use SPSS software version 26.0.

Hypothesis:

H_0 : It is suspected that the income of rice farmers who sell rice is smaller than the income of farmers who sell dry milled grain (GKG).

H_1 : It is suspected that the income of rice farmers who sell rice is greater than the income of rice farmers who sell dry milled grain (GKG).

Decision making in a one-tailed independent sample t-test:

If the sig value. (*1-tailed*) < 0.05, then H_0 is rejected and H_1 is accepted, meaning that the income of rice

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farmers who sell rice is greater than the income of farmers who sell milled dry unhulled grain (GKG).

If the sig value. (*1-tailed*) > 0.05, then H_0 is accepted and H_1 is rejected, meaning that the income of rice farmers who sell rice is smaller than the income of farmers who sell milled dry unhulled grain (GKG).

3. RESULT AND DISCUSSION

3.1 Use of Production Inputs

Rice production requires meticulous maintenance and incentives to achieve high yields. Therefore, careful attention must be paid to the use of production inputs such as land area, seeds, fertilizers, pesticides, and labor (Saputra & Prihtanti, 2022).

3.1.1 Land area

Respondents' land areas ranged from 1 to 2 hectares, with an average of 1.31 hectares used for dry milled rice (GKG) and 1.37 hectares for rice. Details can be seen in the following table.

Table 1. Frequency of Rice Farmers According to Land Area

Land area (Ha)	GKG	Rice
1	41	20
2	17	12
Amount	58	32

Source: Processed Primary Data, 2024

Referring to the data above, of the 90 samples in this study, 58 respondents sold dry milled grain (GKG) and 32 farmers sold rice. The largest land area owned by farmers was 2 hectares, with the majority owning land measuring 1 hectare.

3.1.2 Seed

The seeds used by the respondent farmers were seeds purchased from the previous harvest, and the type of seed used was Inpari 32. For the use of seeds in the form of dry milled grain (GKG) in this study, the average was 26 kg/ha, while in the form of rice, it was 27 kg/ha. This shows that the use of seeds in the form of rice is greater than in the form of dry milled grain (GKG).

3.1.3 Fertilizer

In this study, subsidized fertilizers were used, with farmers using two types: urea and NPK. The average fertilizer requirement for dry milled grain (GKG) is 151 kg/ha, while for rice, it is 150 kg/ha. This indicates that the average fertilizer requirement for rice is lower than for dry milled grain (GKG).

3.1.4 Pesticide

In this study, farmers used Andalan as an insecticide, Score as a fungicide, and Gempur as a herbicide. Pesticide use in the form of dry milled grain (GKG) was 7.11 L/ha, while in the form of rice it was 7.93 L/ha. This indicates that pesticide use in the form of rice is greater than in the form of dry milled grain (GKG).

3.1.5 Labor

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The meaning of family labor refers to labor performed by family members, while extra-family labor refers to labor performed by individuals outside the family. The average use of labor for dry milled grain (GKG) is 38.63 HOK/Ha consisting of 3.36 HOK/Ha of labor within the family and 35.26 HOK/Ha of labor outside the family while the form of rice is 37.90 HOK/Ha consisting of 3.63 HOK/Ha of labor within the family and 34.27 HOK/Ha of labor outside the family. This shows that the use of labor in the form of dry milled grain (GKG) is greater than in the form of rice.

3.2 Analysis of Farm Production Costs

Production costs are the expenses required to produce dry milled grain (GKG) or rice. This study classifies production costs into fixed and variable components. Fixed costs refer to the depreciation of agricultural equipment such as sickles, hoes, and sprayers. Variable costs include expenses for seeds, fertilizers, pesticides, labor wages, and post-harvest costs.

3.2.1 Equipment Depreciation Cost

Expenses incurred from the use of agricultural equipment during the rice production process, adjusted for their estimated useful life, are known as equipment depreciation costs. The equipment depreciation costs in this study include sickles, hoes, and sprayers. The following are expenses for the equipment used by farmers.

Table 2. Average Equipment Depreciation Cost

Tool Name	GKG	Rice
Sickle	5,855	5,420
Hoe	24,118	27,500
Sprayer	68,782	66,363
Amount	98,755	99,283

Source: Processed Primary Data, 2024

Referring to the table, it is shown that the average depreciation cost of equipment in the form of GKG is IDR 98,755/Ha, while in the form of rice amounting to IDR99,283/Ha. This indicates that the depreciation costs incurred by farmers in the form of rice are greater than those in the form of GKG.

3.2.2 Variable Costs

1. Seed Cost

Table 3. Average Seed Costs Incurred by Farmers

Description	GKG	Rice
Usage (kg/ha)	26	27
Seed Price (IDR/kg)	5,800	5,800
Total Cost (IDR/ha)	152,631	157,522

Source: Processed Primary Data, 2024

The table above shows that the average seed used by farmers in the form of dry unhusked rice (GKG) is 26 kg/ha with a total cost of IDR152,631/ha, while the average seed used in the form of rice is 27 kg/ha with a total cost of IDR157,522/ha. From these findings, it can be concluded that farmer expenditures on seeds in dry unhusked rice (GKG) production are proven to be lower when compared to seed costs for rice.

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2. Fertilizer Costs

Table 4. Average Fertilizer Costs Incurred by Farmers

Types of Fertilizer	GKG	Rice
Urea	131,710	130,000
NPK	263,421	260,000
Total Cost (IDR/ha)	395,131	390,000

Source: Processed Primary Data, 2024

From the table presentation it is known that the average amount of fertilizer costs in production in the form of dry milled grain (GKG) is IDR395,131/Ha with an average cost of urea fertilizer of IDR131,710/Ha and NPK fertilizer of IDR263,421/Ha while the average amount of fertilizer costs in production in the form of rice is IDR390,000/Ha with a cost of urea fertilizer of IDR130,000/Ha, and NPK fertilizer of IDR260,000/Ha. This shows that the average cost of fertilizer in the production of dry milled grain (GKG) is greater than in the form of rice and NPK fertilizer is the fertilizer that contributes the highest cost to the use of fertilizer in the production of dry milled grain (GKG) and rice.

3. Pesticide Costs

Table 5. Average Pesticide Costs Incurred by Farmers

Types of Pesticides	GKG	Rice
Herbicide (Gempur)	348,421	443,636
Insecticide (Reliable)	107,105	110,000
Fungicide (Score)	56,473	53,818
Total Cost (IDR/ha)	512,000	607,454

Source: Processed Primary Data, 2024

Data from the available table shows that the average cost of pesticides in production in the form of rice, with a cost of IDR 607,454/Ha, is greater than in the form of dry milled grain (GKG), which has a cost of IDR 512,000/Ha.

4. Labor costs

Table 6. Average Cost of Non-Family Labor (TKLK) incurred by farmers

Type of activity	GKG	Rice
Seeding	244,736	115,000
Planting	1,105,263	1,090,909
Weeding	320,000	320,000
Crop Protection	160,000	160,000
Harvest	1,105,263	1,090,909
Total Cost (IDR/ha)	2,935,262	2,776,818

Source: Processed Primary Data, 2024

Based on the table above, it is known that rice farming activities that use non-family labor include sowing, planting, weeding, plant protection, and harvesting. The data shows that the average cost of non-family labor in dry milled grain (GKG) production is higher, at IDR2,935,262/ha, than in rice production, which costs IDR2,776,818/ha.

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5. Post-harvest costs

Post-harvest costs, which include threshing, milling, and packaging costs, are expenses paid by farmers after harvest until the product is ready for sale in the market, as defined in this study. These are further explained in the following table.

Table 7. Average costs for threshing services, milling services, and packaging services incurred by farmers

Description	GKG	Rice
Threshing Services	1,050,236	1,125,136
Milling Services	0	1,125,136
Packaging Services	0	112,513
Amount	1,050,236	2,362,785

Source: Processed Primary Data, 2024

The table above shows the post-harvest costs of dry milled grain (GKG) consisting of threshing service costs with an average of IDR1,050,236/Ha, while the post-harvest costs of rice consist of threshing service costs, milling services, and packaging with an average of IDR2,362,785/Ha. Based on the results of interviews with farmers, the cost of threshing using a power thresher is around IDR300/kg, then the cost for milling dry milled grain (GKG) into rice is around IDR300/kg, and the milled rice is then packed in 10kg sacks with a packaging cost of around IDR50/kg.

3.3 Total Production Cost

Production costs are the expenses required to produce dry milled grain (GKG) and rice. The total production costs in this study were obtained by adding fixed and variable costs. The following is the average total production costs incurred by farmers.

Table 8. Average Production Costs

Description	GKG	Rice
Fixed Costs Equipment Depreciation	98,756	99,284
Total Fixed Costs	98,756	99,284
Variable Costs		
Seed Cost	152,631	157,522
Fertilizer Costs	395,131	390,000
Pesticide Costs	512,000	607,454
TKLK Fees	2,935,262	2,776,818
Post-harvest costs	1,050,236	2,362,785
Total Variable Costs	5,045,260	6,294,579
Amount (fixed+variable)	5,144,016	6,393,863

Source: Processed Primary Data, 2024

Based on table 8, it shows that the total fixed costs in the form of dry milled grain (GKG) are IDR 98,756/Ha and the total variable costs are IDR 5,045,260/Ha, while the total fixed costs in the form of rice are IDR 99,284/Ha and the total variable costs are IDR 6,294,579/Ha, so it can be concluded that the total production costs in the form of rice are greater with a cost of IDR 6,393,863/Ha than in the form of dry milled grain (GKG) which has a total production cost of IDR 5,144,016/Ha.

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3.4 Revenue Analysis

The revenue analysis in this study was obtained from the difference between production revenue and production costs during the dry season. Revenue is the product of the selling price and the production quantity, while net income is the total revenue minus the total production costs incurred by farmers during the dry season.

Table 9. Average Acceptance

Description	GKG	Rice
Production (kg/ha)	3500	2250
Price (IDR/kg)	7500	13000
Revenue (IDR/ha)	26,250,000	29,250,000

Source: Processed Primary Data, 2024

In the dry planting season, the data from the table above indicates that farmers are able to produce an average of 3500kg/Ha of dry milled grain (GKG) with a selling price of IDR7500/kg, resulting in an average income of IDR26,250,000/Ha, while for rice production, farmers are able to produce an average of 2250kg/Ha with a selling price of IDR13,000/kg, resulting in an average income of IDR29,250,000/Ha.

It can be concluded that farmers' income from rice sales is greater than that from dry milled grain (GKG). Once the income and total production costs are determined, the next step is to determine the farmers' income by subtracting the total income from the total production costs. The income received by farmers is presented in Table 10.

Table 10. Average income received by farmers

Description	GKG	Rice
Total Revenue	26,250,000	29,250,000
Total Production Cost	5,144,016	6,393,863
Income (IDR/ha)	21,105,984	22,856,137

Source: Processed Primary Data, 2025

Based on the data, it is known that the average income received by farmers who sell in the form of rice is greater, with an average of IDR22,856,137/ha, compared to farmers who sell in the form of dry milled grain (GKG), with an average of IDR21,105,984/ha. Thus, while both marketing strategies are profitable as the income received is sufficient to cover all production costs, the data indicates that selling rice generates a substantially higher average income compared to selling dry milled grain (GKG). This suggests that post-harvest processing provides a higher economic margin for farmers.

3.5 Analysis of the Difference in Income between Sales in the Form of Dry Milled Paddy and Rice

To find out the comparison of income between sales in the form of dry milled grain (GKG) and rice for rice farmers statistically, *the Independent Sample t-test will be used* , but before that is done, the data will first go through a normality test and a homogeneity test using SPSS version 26.0.

Table 11. Normality Test of Income of Dry Milled Grain and Rice Farmers

Income	Statistics	Sig. Value
Rice	.105	.200
GKG	.085	.200

Source: Processed SPSS Output , 2025

The normality test results above show a significance value of 0.200 for rice farmer income and 0.200 for dry

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milled grain (GKG). This indicates a significance value > 0.05, and it can be concluded that the data is normally distributed.

Table 12. Results of Independent Samples T-Test For Farmer Income

						95% Confidence Interval	
Group	N	Mean (IDR/ha)	Std. Deviation	t	Sig.(2 tailed)	Lower	Upper
Rice	32	22,744,093.75	464,847.727	14.991	.000	1,474,577.787	1,925,264.885
GKG	58	21,044,172.41	540,228.031				

Source: Processed SPSS Output, 2025

From the following table, the sig value of *Levene's Test for Equality of Variances* is 0.305, which means the value is greater than 0.05. This indicates that the data variance is homogeneous and meets the requirements of the Independent sample t-test, so the inteIDRretation of the t-test is based on *the Equal variances assumed line.*

Based on the results of the independent sample t-test, the t-statistic value is 14.991 with a degree of freedom (df) of 88. The sig (2-tailed) value obtained is 0.000, which means the value is smaller than 0.05. This study tests the alternative hypothesis that claims that rice farmers earn greater income from selling rice than dry milled grain (GKG). For this analysis, a 1-tailed significance value is used, obtained by dividing the 2-tailed value by two (Akbar et al., 2024). The result is 0.000, which is below the threshold of 0.05, thus rejecting the null hypothesis.

The high t-statistic (14.991) is mathematically consistent with the low standard deviations (Rice = 464,847.727; GKG = 540,228.031), reflecting high homogeneity in Pal IX and Sungai Itik villages. Furthermore, the 95% Confidence Interval (1,474,577.787 to 1,925,264.885) does not cross zero, which firmly confirms that the income difference is statistically robust. This income gap of approximately IDR 1,699,921.34 represents the added value generated from post-harvest processing (milling GKG into rice).

Thus, it can be concluded based on the decision-making process of the independent sample t-test using a 1-tailed value that there is a statistically significant difference between farmers who sell rice and farmers who sell dry milled grain (GKG), with a tendency for farmers who sell rice to have a higher income than farmers who sell dry milled grain (GKG). This result is confirmed by Pamungkas' (2019) study, which reached a similar conclusion.

3.6 Descriptive Comparison of Income in the Form of Dry Milled Grain and Rice

The higher income from rice compared to dry milled grain (GKG) is due to added value. This aligns with research conducted by R. & Windhani, Supadi (2019), which states that selling rice provides greater added value for farmers. In this study, added value is obtained through the milling and packaging process of dry milled grain into rice. Through observations and interviews with farmers, it was found that the majority of farmers prefer to sell their harvest in the form of dry milled grain (GKG).

The current selling price of rice at the farmer level is around IDR13,000/kg, while the selling price of dry milled grain (GKG) is around IDR7,500/kg. This difference in selling prices indicates a significant income gap if farmers choose to sell paddy as rice. However, to convert dry milled grain (GKG) into rice, there are several costs that need to be incurred, such as a milling fee of IDR300/kg and a packaging fee of IDR50/kg, so the total processing cost that must be borne by farmers is around IDR350/kg. These costs will certainly reduce the difference in income obtained from selling rice compared to selling dry milled grain (GKG).

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If calculated, the price difference between rice and dry milled grain (GKG) of IDR 5,500/kg will be reduced to IDR 5,150/kg after deducting processing costs of IDR 350. This difference still shows that selling rice is more profitable than selling dry milled grain (GKG), despite the additional costs. In addition to price, milling yields also affect farmers' income. From one hectare of land, farmers produce an average of around 3,500kg of dry milled grain (GKG). After the milling process, 3,500 kg of dry milled grain (GKG) produces around 2,250 kg of rice, indicating a 64% milling recovery rate (rendemen). This means there is a 36% weight reduction consisting of husks and bran. Despite this weight loss, the significant price jump from IDR 7,500/kg to IDR 13,000/kg ensures that selling rice remains more economically beneficial for farmers.

Considering the selling price, production costs, and harvest volume, it can be concluded that selling rice economically provides a greater net profit than selling dry milled grain (GKG). Furthermore, the market reach for rice is broader than that of dry milled grain (GKG). Farmers in Sungai Kakap District sell rice directly to nearby markets and small shops in the surrounding area, while dry milled grain (GKG) can only be sold to millers. Direct access to end consumers certainly provides higher profits than selling dry milled grain (GKG) to middlemen.

However, the reality on the ground shows that the majority of farmers in Sungai Kakap District still prefer to sell their harvest in the form of dry milled grain (GKG). This is not without reason; several factors contribute to this, including limited capital and pressing economic needs. This finding is supported by previous research (Mahmud et al., 2021), which found that pressing economic needs remain one of the reasons farmers prefer to sell their rice in the form of dry milled grain (GKG).

Interviews with farmers in Sungai Kakap District revealed that selling dry milled grain (GKG) directly to middlemen is more practical and faster, even if the price received is lower. This is supported by research by Supratmini et al., (2022), which states that the advantage of selling dry milled grain (GKG) is its practicality. Furthermore, farmers have limited capital to cover the costs of milling dry milled grain (GKG) into rice.

Another reason that causes farmers to prefer selling in the form of dry milled grain (GKG) is because there is no BUMDes which has an important role as a manager of agricultural products in the village, even though in Sungai Kakap District there is an RMU (Rice Milling Unit) but its existence has not been utilized optimally because the RMU (Rice Milling Unit) is not owned by the village or farmers together but belongs to an outside party which results in farmers not being able to mill rice for free or cheaply so they have to pay milling service fees according to the rates of the RMU (Rice Milling Unit) owner.

This preference indicates a potential selection bias driven by socio-economic constraints. Although selling rice is mathematically more profitable, many farmers choose to sell GKG due to the urgent need for immediate cash (liquidity) to cover household expenses or repay seasonal debts. Additionally, the lack of private drying floors and limited access to labor during the peak harvest season often force farmers to accept the lower margins of GKG in exchange for a faster and less labor-intensive sales process.

As a result, farmers lose the opportunity to independently increase added value, leading to dependence on middlemen and a weakened bargaining position in the agricultural supply chain. This analysis shows that while selling rice is more profitable financially, the final decision still depends on the capabilities and circumstances of each farmer.

4. CONCLUSION

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The research results clearly demonstrate a significant difference in profitability between these two marketing strategies. Specifically, the average income of rice farmers selling dry milled grain (GKG) was IDR 21,105,984/ha, while farmers selling rice earned an average income of IDR 22,856,137/ha. This indicates that farmers involved in rice sales consistently achieve higher incomes than those selling dry milled grain (GKG). Statistical analysis using a one-way independent samples t-test further corroborates this difference. The test yielded a significance value (sig. 1-tailed) of 0.000, substantially lower than the predetermined significance level of 0.05. This result leads to the rejection of the null hypothesis (H0) and the acceptance of the alternative hypothesis (H1), thus statistically confirming that the income of rice farmers who sell in the form of rice is indeed significantly greater than the income of rice farmers who sell in the form of dry milled grain (GKG). This income disparity is significantly influenced by variations in selling prices, production costs, and milling yields specific to each sales format. Therefore, post-harvest processing options and marketing channels play a crucial role in determining the final income received by rice farmers, underscoring the economic benefits of value addition in improving profitability and overall farmer welfare.

Based on these results, it is recommended that the village government encourages the establishment and strengthening of Village-Owned EnteIDRrises (BUMDes) to manage rice milling and marketing. Furthermore, providing training and business assistance regarding product added value is essential to raise farmers' awareness of the economic advantages of selling rice compared to GKG.

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