JALOW
Journal of Agribusiness and Local Wisdom

Analysis of Rice Paddy Farming Income in Pasar Terusan Village, Muara Bulian District, Batanghari Regency

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ABSTRACT

The purpose of this study was to: 1) describe the description of lowland rice farming; and 2) analyze the income of lowland rice farming in Pasar Terusan Village. The selection of respondents was 40 respondents from 4 farmer groups. Data analysis in this study used descriptive analysis with an income formula. The results showed that 1) The description of lowland rice farming in Pasar Terusan Village was 0.30 ha, the seed varieties most widely used Karya Renda and Anak Daro with a usage of 2-8 kg/ha/MT, the types of drugs used were gramaxone, regent, CBA and insecticides with a usage of 0.67-1.57 liters/ha/MT. The types of fertilizers used were Urea, SP36 and KCl with a usage of 8-16 kg/ha/MT, the number of workers used was 1-2 people. The highest amount of lowland rice production was in the Payo Kering I farmer group, which was 1,100 kg/ha/MT. 2) Income of paddy farming in Pasar Terusan Village is Rp.9,813,974,-/ha/MT with revenue of Rp.11,683,750,-/ha/MT and total production cost of paddy farming in Pasar Terusan Village is Rp.1,869,776,-/ha/MT, and from the results of the R/C ratio analysis of 6.25 (R/C> 1) indicates that farmers' income is profitable and feasible to be cultivated. Based on this, this study is expected to be a reference or guideline for farmers in managing their farming businesses, where farmers can improve farming management according to the conditions of the land they have by utilizing all inputs to produce production or produce output according to the wishes of farmers.

Keywords: Income, Farming, Ricefield

INTRODUCTION

An agricultural commodity that is considered an important commodity until now is paddy rice, because paddy rice is an important food crop that produces rice which is a source of staple food for the Indonesian people, almost all Indonesian people consume rice as a daily staple food. In addition to playing a role as a staple food source, rice field commodities also have a strategic role in Indonesian life, namely being the main source of income for farmers. Therefore, it is important to maintain and increase the availability of paddy fields.

Rice paddy farming has spread throughout Indonesia, one of which is Batang Hari Regency in Jambi Province. One of the reasons the researcher has Batang Hari Regency is because Batang Hari is one of the rice production centers in Jambi Province after Kerinci, Merangin, Tanjung Jabung Barat and Sungai TFull City (BPS, 2024). The next reason is because all sub-districts in this regency are still actively doing paddy rice farming, so some residents still depend on paddy farming for their livelihoods to meet rice needs.

All sub-districts in Batang Hari Regency carry out rice field farming. However, the productivity of paddy fields in each sub-district is still below the national average standard, because the average national paddy productivity standard is 5.24 tons/ha. One of the sub-district areas that has rice field productivity below the national average is Muara Bulian District with a productivity of 5.05 Tons/Ha. In terms of productivity, Muara Bulian District is the fifth highest, still low compared to other sub-districts in Batang Hari Regency. Muara Bulian District has 21 villages, but only 10 villages are engaged in paddy rice farming.

The productivity of paddy fields in Muara Bulian District is still low. This is because the irrigation system of rice fields in Muara Bulian District uses a rain-catching system so that it is likely that crop failure can occur during the rainy season with high rainfall intensity or in the dry season, which can affect farmers' income. Of the 10 villages where there are rice field farming, the village with the highest land area is Pasar Terusan Village. The rice harvest area in Pasar Terusan Village is 727 Ha or 41.3 percent of the total rice paddy harvest area in Muara Bulian District with a production of 3,676 tons or 46.1 percent of the total rice paddy production in Muara Bulian District, while the productivity reaches 6.5 tons/ha. The condition of the rice fields in Pasar Terusan Village is a swamp land, so it is periodically or continuously flooded during the rainy season, while during the dry season, the condition of the land

becomes dry. Even so, farmers in this village continue to plant paddy fields with a planting period only once a year. The planting period adjusts to the condition of the land, where the chosen condition is when the land is not too dry due to drought and is not flooded during the rainy season. This is in the opinion of Kurniawan (2023) that almost all paddy fields in Pasar Terusan Village are swamp land, where this area has swamps around which there are rivers and tributaries. The type of rice planted is paddy rice with a planting season of 1 time per year, because it adjusts to the condition of the land.

The land condition in Pasar Terusan Village is similar to the land condition in Bajubang Laut Village which uses rainfed land. This is because all paddy farmers in Muara Bulian District still use rainfed land as land for farming, so these two villages have similar land conditions. However, the productivity of paddy fields between Pasar Terusan Village and Bajubang Laut Village shows a difference, where the rice field productivity of Pasar Terusan Village is only 6.5 tons/ha, while in Bajubang Laut Village it reaches 7 tons/ha. Even though the type of rice used is the same rice field. This difference is suspected to be due to differences in management methods and so on, so that productivity is also different.

Furthermore, in running their business, paddy rice farmers in Pasar Terusan Village are members of farmer groups, where there are 11 farmer groups with a total of 926 farmers (Appendix 1). The farmer group in Pasar Terusan Village consists of farmer groups with beginner class, first class, advanced class and intermediate class. The beginner class farmer group is a farmer group with a ability value of 0-250, the advanced class group is a group with a ability value of 251-500, the intermediate class group is a group with an ability value of 501-750 and the main class group is a group with an ability value of 751-1000. The value of the farmer group's capabilities is determined based on the results of the classification obtained from the Five Farmer Group Capabilities (PAKEM POKTAN), including the ability to plan, organize, carry out activities, control and report, and develop farmer group leadership.

In order to support rice farming in Pasar Terusan Village, the Batang Hari Regency government provides an assistance program evenly to all members of farmer groups in the village. This information was obtained from field agricultural extension workers (PPL) in Muara Bulian District. Based on information from PPL, if the assistance provided is Agricultural Machinery Equipment (Alsintan) such as tractors or *combine* machines, then each farmer group will get one tool that will be used together with members, but if the assistance provided is fertilizer or medicine, then the assistance is given equally to all members of the farmer group.

This assistance program will only be given in 2023 with a budget from the State Revenue and Expenditure Budget (APBN), as well as the Regional Revenue and Expenditure Budget (APBD). This means that this assistance program is not given every year, but periodically or periodically. The assistance programs provided are assistance for medicines, systemic herbicides, agricultural tools and machinery, water pump assistance, subsidized fertilizer assistance, and data collection for production tiles. More clearly, the assistance programs provided to each farmer group can be seen in the discussion chapter.

The problem faced by paddy rice farmers in Pasar Terusan Village is the productivity of paddy rice farming of 6.5 Tons/Ha, where this productivity is lower than that of Bajubang Laut Village, which is 7.0 Tons/Ha. In this case, farmers continue to farm their rice fields in accordance with the habits of their previous ancestors. This is due to the availability of rice fields and the habit of planting rice paddies that have existed for a long time and are carried out from generation to generation.

The people in Pasar Terusan Village do not make rice farming as their main livelihood, this is because in Pasar Terusan Village only has a planting index once (IP 100) which means only one planting season in one year or six months of farming until harvest and the next six months the rice fields are used for local farmers' livestock such as cows, buffalo and goats with the aim of loosening and fertilizing rice fields before the replanting process. Although not the main livelihood, the people in Pasar Terusan Village carry out rice farming activities regularly every year from April to September. In addition to rice farming, farmers in Pasar Terusan Village have the main source of income obtained from trading activities, labor, employees and others.

Rice field farming activities in Pasar Terusan Village have been inherited from their previous ancestors and passed on to the next generation, although many of the people of Pasar Terusan Village are highly educated, but the community is not ashamed to farm. The slogan made in the Village Regulation (PERDES) is "Malu Dak Bahumo" which means that farmers in Pasar Terusan Village feel ashamed if they do not farm and this is one of the reasons why farmers in Pasar Terusan Village still maintain rice field farming. Almost all people of Pasar Terusan Village cultivate paddy fields as the main commodity of their farming even though there are several superior commodities from the horticulture, plantation and livestock sub-sectors.

Rice paddy farming business activities in Pasar Terusan Village are supported by the existence of farmer groups that are still active. The number of farmers in Pasar Terusan Village is 926 farmers and has 11 groups of paddy rice farmers (Appendix 1). From all farmer groups in Pasar Terusan Village, they received assistance from the government in the form of seeds, medicines, fertilizers, alsintan, the creation of Farmer Business Roads (JUT), paving

farmers' roads and agricultural extension post buildings. As for the program from the government, namely RDKK (Definitive Plan for Group Needs) fertilizer which aims to increase agricultural production, people's interest in farming.

Paddy rice farming as an agricultural commodity experiences an increase in price every year due to economic factors. Price is one of the things that plays a very important role in determining the income of paddy rice farmers. Based on data obtained from farmers, the output price obtained by farmers when selling rice crops is Rp. 7,000/Kg to Rp. 10,000/Kg in the 2019-2023 period. Meanwhile, input prices are increasing day by day. This price will affect the income that will be obtained by farmers in meeting their living needs and financing all input costs in paddy farming.

Based on this, the objectives of this study are 1) to describe the picture of paddy rice farming in Pasar Terusan Village; and 2) analyze the income of paddy rice farming in Pasar Terusan Village.

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RESEARCH METHOD

This research was conducted in Pasar Terusan Village, Muara Bulian District, Batang Hari Regency on July 1-30, 2024, so the data collected is data for the April-September 2023 period. The data collected were primary data and secondary data with data collection using questionnaires. The number of farmers who were used as respondents was determined by using *purposive sampling* of 40 people. Data analysis is descriptive with the following revenue formula:

$$\mathbf{TR = Y.Py}$$

Information:
TR = Total Receipts
Y = Rice Field Production
P = Price

Total cost is the sum of fixed costs and variable costs. Formula
The total cost according to Soekartawi (1995) is as follows:

$$\mathbf{TC = FC + VC}$$

Information:
TC = Total *cost*)
FC = *Fixed cost*)
VC = *Variable cost*)

Rice farming income is obtained from the total revenue minus the production costs that have been incurred during one planting season as in the following formula:

$$\mathbf{I = TR – TC}$$

Information:
I = Revenue
TR = Total Receipts
TC = Total Cost

After calculating farmers' income, the income is then analyzed using R/C ratio analysis. R/C Ratio is the number of ratios used to see the relative profit that will be obtained in a business. Basically, an effort will be said to be worth carrying out if the R/C value obtained is greater than 1. This can happen because the higher the R/C value of a business, the higher the profit level that a business will get. The R/C ratio analysis is analyzed with the following equations:

$$\mathbf{R/C = \frac{TR}{TC}}$$

Information:
R/C = *revenue cost ratio*
TR = total *revenue*
TC = total cost

The decision-making criteria used are as follows:

a) If the R/C is > 1, then the rice farming business carried out is profitable, because the revenue is greater than the total cost.
b) If R/C<1, then the rice farming business carried out is not profitable to run, because the revenue is less than the total cost.
c) If R/C=1, then the paddy rice farming business is in a condition where the business does not get any profit or loss because the total revenue is equal to the total cost.

RESULTS AND DISCUSSION [SIZE 11 UPPERCASE]

1. Overview of Paddy Rice Farming in Pasar Terusan Village

The average land area owned by paddy rice farmers in Pasar Terusan Village is 0.30 ha. Table 12 shows that 32.50% of farmers have a land area of 0.23-0.33 years, while 2.50% have a land area of 0.56-0.66 ha and 0.67-0.77 ha. The status of land ownership owned by farmers in each group is privately owned land. The seed varieties used by paddy rice farmers in Pasar Terusan Village are superior varieties in the form of Inpari, Ciherang and Cisoka. Therice seed arietas that are most widely used by farmers are Karya Renda and Anak Daro with a total of 10 farmers each. Themost used seeds are Jambi Girls and Daro Children, where the number of Jambi Girls seeds used is 20 kg/MT and Daro Children is 22 kg/MT.

The type of drugs used is *gramaxone* with the average use of *this gramaxone* is 1 liter/ha/MT. This shows that the use of *gramaxone* for paddy rice plants in Pasar Terusan Village is in accordance with the standard of use, namely 1-2 liters/ha/MT (Sygenta, 2023). The average use of *regent* by paddy rice farmers in Pasar Terusan Village is 1 liter/ha/MT. The use ofregent is in accordance with the standard of use, as Sygenta (2023) thinks that the dose of regent should be 0.5-1 liter/ha/MT. The average use of CBA is 1 liter/ha/MT, while the average use of insecticides by paddy rice farmers in Pasar Terusan Village is 1 liter/ha/MT.

The fertilizer used is Urea with the average use of Urea fertilizer by rice farmers in Pasar Terusan Village is 15 kg/ha/MT. This shows that the use of Urea fertilizer for rice paddies in Pasar Terusan Village is not in accordance with the predetermined fertilization standards. As Anna (2023) argues, the standard for using Urea fertilizer is 39 kg/ha/MT. The average use of SP36 fertilizer by farmers in Pasar Terusan Village is kg/ha/MT. The average use of KCl fertilizer by farmers in Pasar Terusan Village is 10 kg/ha/MT.

Theaverage use of TKDK in paddy farming in Pasar Terusan Village is 2 people with an average HOK of 1.89 HOK. The average rice production in Pasar Terusan Village is 943 kg/ha/MT. After the rice is harvested, farmers will usually consume their crops to meet their daily rice needs. However, some are also sold in the form of rice to the surrounding community and marketed in traditional markets and grocery stores at a price of Rp.12,400,- per Kg.

2. Income of Paddy Rice Farming in Pasar Terusan Village

A. Acceptance

The revenue for paddy rice farming in Pasar Terusan Village can be seen in Table 1.

Table 1. Rice Field Farmers Receipts in 2023

No.	Component	Value
1	Production (Kg/ha/MT)	943
2	Price (Rp/Kg)	12.400
3	Admission (Rp/ha/MT)	11.683.750

The table shows that the income of paddy rice farmers in Pasar Terusan Village is Rp.11,683,750,-/ha/MT. This revenue is obtained from the production of 943 kg/ha/MT, while the selling price is Rp.12,400,-/Kg. The selling price used is the selling price in the form of rice, where this rice is usually sold to the local community, grocery stores and markets in the farmer's environment.

From the above results, the incoe of paddy rice farmers in Pasar Terusan Village is not much different from the results of Erwandri et al (2022) research which states that the income of paddy rice farmers in Selat Village, Pemayung District ranges from Rp. 15. 958.001 – Rp. 19.916.001,-/MT.

B. Production Cost

The description of each cost used by paddy farmers in Pasar Terusan Village is as follows:

1. Fixed Cost

The fixed costs of paddy farming in Pasar Terusan Village can be seen in Table 2.

Tabel 2. Fixed Cost of Rice Farming in 2023

No.	Equipment	Depreciation Cost (Rp/ha/MT)
1	Sickle	10.838
2	Hoe	10.629
3	Sprayer	36.166
4		17.897
	Total	**72.001**

Table 2 shows that the fixed cost of paddy rice farming in Pasar Terusan Village is Rp. 72.001,-/ha/MT. This fixed cost is only calculated as an allocation of costs that must be borne by the farmer. Of the 4 equipment components used, the largest depreciation cost is a sprayer of Rp.36.166,-/ha/MT. Next, farmers also have to pay depreciation costs for tugal of Rp. 17.897.-/ha/MT, where tugal is used to comb the land after being ploughed using a tractor. Then the cost of sickle depreciation is Rp. 10.838,-/ha/MT and hoe depreciation is Rp.10.629,-/ha/MT.

2. Variable Cost

Variable costs are costs that are used up in a single production. The amount of variable costs that must be incurred by paddy farmers in Pasar Terusan Village can be seen in Table 3.

Table 3. Variable Costs of Rice Field Farming in 2023

No.	Component	Variable Cost (Rp/ha/MT)
1	Seed	70.250
2	Urea Fertilizer	145.250
3	SP36 Fertilizer	114.000
4	KCl Fertilizer	146.650
5	*Gramaxone* Drugs	130.950
6	*Regent* Medicine	33.800
7	CBA Drugs	33.635
8	Insecticide	70.938
9	Petrol	15.250
10	Group Fees	25.000
11	Workforce	1.012.063
	Total	**1.797.775**

Table 3 shows that the variable cost of paddy rice farming in Pasar Terusan Village is Rp.1,797,775,-/ha/MT which consists of the cost of seeds, fertilizers, medicines, labor, and so on. Of the 11 variable cost components, the costs that are only taken into account are fertilizer costs and drug costs, while the costs that must be incurred are the cost of seeds, labor, gasoline and group dues.

Table 3 shows that the largest variable cost is the labor cost of Rp.1,012,063,-/ha/MT and the cost of Urea fertilizer of Rp.145,250,-/ha/MT. Rice field farmers in Pasar Terusan Village also have to pay variable costs for the purchase of seeds of Rp.70,250,-/ha/MT, SP36 fertilizer costs of Rp.114,000,-/ha/MT and KCl fertilizer costs of Rp.146,650,-/ha/MT. Furthermore, the cost of medicines consisting of *gramaxone* is Rp.130,950,-/MT, *regent* is Rp.33,800,-/ha/MT, CBA is Rp.33,635,-/ha/MT and insecticide is Rp.70,938,-/ha/MT. The next variable cost consists of gasoline of Rp.15,250,-/ha/MT. This gasoline is used to fuel tractors and grinding machines borrowed from each farmer group. Furthermore, farmers must also pay a group contribution of Rp.25,000,-/ha/MT, where this contribution is used for the needs of the farmer group, one of which is to make repairs if the tractor machine and rice miller are damaged.

3. Total Production Cost

The total production cost of paddy rice farming in Pasar Terusan Village can be seen in Table 4.

Table 4. Total Production Costs of Rice Field Farming in 2023

No.	Component	Cost (Rp/ha/MT)
	Cost is taken into account	
1	Depreciation costs	72.001
2	Fertilizer Cost:	
	Urea	145.250
	SP36	114.000
	Kcl	146.650
3	Cost of Medicines:	
	Gramaxone	130.950
	Regent	33.800
	CBA	33.635
	Insektisida	70.938
	Jumlah Biaya diperhitungkan	**747.149**
	Biaya dibayarkan	
1	Seed	70.250
2	Petrol	15.250
3	Group Fees	25.000
4	Workforce	1.012.063
	Jumlah Biaya dibayarkan	**1.122.563**
	Total Biaya	**1.869.776**

Table 4 shows that the total production cost of paddy rice farming in Pasar Terusan Village is Rp. 1.869.776,-/ha/MT which consists of calculated costs and paid costs. The components of the cost taken into account are depreciation costs, fertilizer costs and drug costs. This is because paddy farmers in Pasar Terusan Village receive fertilizer and medicine assistance and farmers don't need to buy, so the cost is only calculated. Furthermore, the costs paid consist of the cost of seeds, petrol, group fees and workforce. This is because farmers don't receives seed assistance from the goverment, so they have to buy independently.

This shows that the total production cost of paddy rice farming in Pasar Terusan Village is smaller than the results of research by Erwandri et al (2022) who stated that the total production costs that must be incurred by paddy farmers in Selat Village, Pemayung District range from Rp.7.968.898-8.959.846,-/ha/MT.

C. Revenue

Income is the net income received by farmers from the proceeds of receipts minus the costs used by farmers during the production process. The income of paddy farmers in Pasar Terusan Village can be seen in Table 5.

Table 5. Rice Field Farming Income in 2023

No.	Component	Value (Rp/ha/MT)
1	Acceptance	11.683.750
2	Production costs	1.869.776
	Income	**9.813.974**

Table 5 shows that the income of paddy rice farming in Pasar Terusan Village amounted to Rp.9,813,974,-/ha/MT which consisted of revenue of Rp.11,683,750,-/ha/MT and the total production cost of paddy rice farming in Pasar Terusan Village amounted to Rp.1,869,776,-/ha/MT. This shows that the income of paddy rice farmers in Pasar Terusan Village is smaller than the results of research by Erwandri et al (2022) who stated that the income of paddy farmers in Selat Village, Pemayung District ranges from Rp.10,621,350-14,046,324,-/ha/MT. Furthermore, the results of this study are almost the same as the results of Astuti (2024) research which states that the income of paddy rice farmers in Pasar Terusan Village is Rp.9,703,550,-/ha/MT.

D. R/C Ratio

The results of the R/C ratio analysis in this study are as follows:

Table 6. R/C Ratio of Rice Field Farming in 2023

No.	Component	Value
1	Acceptance	11.683.750
2	Production costs	1.869.776
	R/C Ratio	**6,25**

The results of the analysis show that the R/C value of paddy rice farming in Pasar Terusan Village is 6,25, so the value is greater than 1 (R/C > 1). This means that rice farming in Pasar Terusan Village is profitable and feasible to run. This is because the revenue from paddy farming in Pasar Terusan Village is greater than the production costs that must be incurred.

CONCLUSION

The average land area of rice farming in Pasar Terusan Village is 0,30 ha, the most widely used seed varieties by each farmer group are Karya Renda and Anak Daro with a total use of 20-22 kg/ha/MT, the types of drugs used are gramoxone, regent, CBA and insectisides with a total use of 0,67-1,57 liters/ha/MT. The types fertilizers used are Urea, SP36 and KCl with a total use of 8-16 kg/ha/MT, the number of workers used is 1-2 people. The average rice production is 943 kg/ha/MT.

The income of paddy rice farming in Pasar Terusan Village is Rp. 9.813.974,-/ha/MT with a revenue of Rp. 11.683.750,-/ha/MT and the total production cost of paddy rice farming in Pasar Terusan Village is Rp. 1. 869.776,-/ha/MT and the results of the R/C ratio analysis show that farmers income is profitable and feasible to be cultivated.

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