



Comparison Of Rice Farming Income With Corn And Watermelon Farming In Subak Pangyangan Pangyangan Village, Pekutatan District

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Abstract

Subak Pangyangan is one of the subaks that still rely on the cultivation of food crops to lift their family's economy, where rice plants are still a food crop that is widely cultivated compared to other crops including corn and watermelon, so the corn and watermelon plants in SubakPangyangan are Opportunity Cost or "cost" (as a lost benefit) of the product after making a choice. . The purpose of the study is: 1) analyzing the comparison of rice farming income with opportunity cost (corn and watermelon). 2) describe the obstacles faced by rice, corn and watermelon farmers in SubakPangyangan, Pangyangan Village, Pekutatan District. Sample collection is used census method that uses the entire population as a research sample. The first goal is analyzed with business income analysis, R/C ratio analysis and one-way anova test to find out the average revenue breakdown using SPSS 25 software, while the second goal is with descriptive analysis methods. The results of the study showed: 1) there is an average difference in nominal terms between the income of rice, corn and watermelon farmers per hectare in one growing season where each agricultural income is Rp9.510.234.00, corn farming income of Rp27.392.554.00, and watermelon farming income of Rp 32,526,710.00. The lowest rice R/C ratio among the three types of farming is 2.00, while corn is 4.00 and watermelon is 2.82. Statistical tests showed a marked difference between the three types of farming at a level of 5%. The obstacles faced by farmers include an uncertain climate, pest and disease attacks, price changes, finance / capital and marketing.

Keywords: income, rice farming, corn farming, watermelon farming, agricultural constraints

A. Introduction

The agricultural sector in Indonesia is the main base of the national economy. Most Indonesians still depend on the agricultural sector. The agricultural sector contributes to national development, such as increasing national resilience, employment, and increasing people's income. A very important subsector in the agricultural sector is the food crop and horticulture subsector (Tri Agustam et al., 2016).

The demand for food in Indonesia from year to year is increasing, especially the main food ingredients of carbohydrates such as rice, corn and soybeans. One of the food crop commodities that has a role in improving food security is rice crops (Handayani et al., 2017). Rice and corn

are foodstuffs that are widely cultivated and traded both for domestic raw material purposes and for export (Agustyari et al., 2013). In addition to food crops, horticulture is also an important subsector in addition to food crops, hortikultura plants are commodities that have excellent prospective to develop, because they have a very high economic value, especially for farmers (Istiyani, 2016). One of the horticultural crops that are strategic and have high economic value is watermelon.

In Pekutatan District, one of the subaks that are still actively producing food crops and horticulture crops is SubakPangyangan. SubakPangyangan is a subak that has a fairly large area of land compared to other subaks located in Pekutatan District. People in SubakPangyangan still rely on the cultivation of food crops to lift the economy of their families. This food crop cultivation business is still pursued by the SubakPangyangan community.

Rice plants are food crops that until now have become food crops that are widely cultivated in addition to rice there are also other crops, namely corn and watermelon. Rice is still a widely cultivated food crop compared to corn and watermelon, so the corn and watermelon plants in SubakPangyangan are Opportunity Cost or "cost" (as a lost benefit) of the product after making a choice. To find out the extent of the comparison of income from the cultivation of rice, corn and watermelon crops, researchers are interested in conducting research on the comparison of rice farming income and other agricultural businesses in SubakPangyangan.

The purpose of this study is to analyze the income of rice farmers compared to opportunity costs, namely corn and watermelon and describe the obstacles faced by rice, corn and watermelon farmers in SubakPangyangan, Pangyangan Village, Pekutatan District.

B. Methodology

Research in SubakPangyangan, Pangyangan Village, Pekutatan District, Jembarana Regency. The determination of the sample in this study is using the census method or saturated sampling, which uses the entire population into a sample of 70 people with 38 rice farmers, 22 corn farmers and 10 watermelon farmers.

The data collection methods used in this study are observation, interview, and literature methods. The variables in this study are agricultural income and agricultural constraints. The data analysis used in this study is income analysis, R/C ratio analysis, and one-way anova test analysis. As well as variables of agricultural constraints that are analyzed descriptively.

C. Findings and Discussion

1. Characteristics of Respondents

1.1 Age

Age is one of the factors that affect agricultural productivity. The average age of rice farmer respondents is the most at the age of 46-50 years, while the average age of corn farming respondents is the most at the age of 36-40 years and the most average watermelon farming respondents at the age of 36-40 and 41-45 years. For the average farmer as many as 67 (95.7%) farmers aged productive 30-60 years and the remaining 3 people aged more than 60 years (4.3%).

1.2 Education

The level of education has an influence on crop production results because the level of formal education affects changes in farmers' behavior in agricultural activities (Saragih, 2019). The average level of farmer education in SubakPangyangan is at the high school and junior high school levels. In rice farming, the education level of farmers is average at the high school level, corn farmers respondents are at the most at the high school and junior high school levels, and in watermelon farmers the most at the junior high school level, while others are at the elementary level. For the average overall level of education of the largest farmers at the high school level as 29 people (41%), then at the junior high school level 23 people (33%), and the rest at the elementary level as many as 18 people (26%).

1.3 Number of household members

The average number of household members of rice, corn and watermelon farmers in SubakPangyangan amounted to between 2-5 people as many as 41 farmers (60%), the rest more or equal to 6 people as many as 28 farmers (40%).

1.4 Basic and Side Jobs

The main workers of farmers members of SubakPangyangan all work as farmers (100%), while for side jobs as farmers as many as 25 respondents (36%), traders as many as 9

respondents (13%), as building porters 1 respondent (1%), drivers 1 respondent (1%), and the rest do not have side jobs as many as 34 respondents (49%).

1.5 Farming Experience

The experience of farming affects the way farmers do their farming. The longer the farmer's farming experience, the better the farmer's ability to manage his farming (Saragih, 2019). The average farming experience of SubakPangyangan members as a whole is between 1-30 years as many as 63 people (90%), the remaining 7 people (10%) have more than 30 years of experience.

2. Comparison of Rice Farming Income with Opportunity Cost (Corn and Watermelon) in SubakPangyangan

2.1 Farm Costs

According to Andriani (2018) cost analysis aims to find out the amount of costs incurred in one production. Meanwhile, production costs are costs incurred by respondent farmers in the production process. These costs are usually in the form of the cost of purchasing production facilities, depreciation costs as a result of the use of a tool. The types of costs incurred by respondents in managing their farming business are fixed costs (Fixed Costs) and Variable costs (Variable Costs). The total cost of rice farming incurred in a one-season cycle per land area in SubakPangyangan amounted to Rp 6,619,378.00 consisting of variable costs, namely seeds, fertilizers, pesticides, and labor, which amounted to Rp 6,453,697.00, the largest cost incurred was Rp4,699,079.00, namely labor costs. The fixed cost consists of the depreciation cost of agricultural equipment, irrigation costs, taxes, and ritual costs of Rp 302,389.00, the largest cost incurred is irrigation costs of Rp 186,563.00.

In corn farming, the total cost incurred in one cycle of the season expands arable land in SubakPangyangan is Rp 6,884,807.00. The variable cost consisting of the cost of seeds, fertilizers, pesticides, and labor amounted to Rp 6,742,077.00, the largest cost incurred was labor costs of Rp 4,160,568.00. The total fixed cost incurred on corn farming is Rp 2,231,276.00 which consists of equipment depreciation costs as well as land leases, taxes and ritual costs, the largest cost incurred is the land rental cost of Rp 2,114,375.00.

The total cost on watermelon farming in one cycle of the season expands arable land in SubakPangyangan is Rp 15,261,398.00. The variable cost incurred amounted to Rp 12,314,567.00 consisting of the cost of seeds, fertilizers, pesticides, labor and other costs (mulch and polybag), the largest cost on variable costs is labor costs which is Rp 6,015,000.00. The fixed cost incurred on watermelon farming is Rp 3,702,848.00 which consists of depreciation costs of agricultural equipment and land rental costs, taxes and ritual costs where the largest cost incurred in the cost of land rent is Rp 3,512,500.00.

The results showed that the average total cost of rice farming incurred was smaller, which was Rp 6,619,378.00 compared to the average total cost of corn and watermelon. Watermelon farming costs the most total costs are Rp 12,314,567.00, while the average total cost incurred by corn farming farmers is Rp 6,884,807.00. The difference in costs incurred on each developed farm. The same is true of Darmawan's research, et al. (2014) about the difference in vegetable farming income by doing and not diversification (monoculture) there is a difference in production costs incurred, especially on the use of seed costs, fertilizers, drugs, labor wages, and other costs.

2.2 Revenue and Income of Farmers

The amount of revenue is reduced by the total costs incurred to obtain the amount of income value (Matakena and Pigai 2021). Based on the results of the study, the calculation obtained from the average production of rice in SubakPangyangan 3218.421053 Kg with an average price of 3,800 / Kg. The net income of rice farmers is Rp 5,323,622.00, the acquisition is obtained from the difference between agricultural receipts of Rp 11,943,000.00 with a production cost of Rp 6,619,378.00. The data can be seen in table 2.1.

Table 2.1 Average Income in One Growing Season Rice Farming With Opportunity Cost (Corn and Watermelon) in SubakPangyangan, Pangyangan Village, Pekutatan District

No	Description	Rice	Corn	Watermelon
1.	Production	3218,421053	5323	13407
2.	Price	3800/kg	5000/kg	2500/kg

	Revenue	Rp11.943.000	Rp26.613.636	Rp33.675.000
3.	Total Fixed Cost	Rp272.440	Rp864.466	Rp1.575.264
4.	Total Variable Cost	Rp6.346.938	Rp6.038.341	Rp10.739.303
	Total Production Cost	Rp6.619.378	Rp6.884.807	Rp12.314.567
	Farm Net Income	Rp5.318.787	Rp19.728.830	Rp21.360.433

Source: Primary Data, 2022

The average production of corn farming in SubakPangyangan is 5323 Kg with an average price of 5000 / Kg. The net income obtained from corn farming is Rp19.728.830.00 which can be obtained from the difference in receipt of Rp26.613.636.00 with a total production of Rp 6,884,807.00. In watermelon farming based on table 2.1, the average production produced in one growing season cycle is 13,407 Kg at a price of 2,500 / Kg. The total net income obtained is Rp 21,360,433.00, the results are obtained from the calculation of the difference between the farmer's receipt of Rp 33,675,000.00 with a total production of Rp 12,314,567.00.

Net income is the difference between receipts (TR) and total costs (TC)(Gunawan et al., 2011).Based on the results of research, the income an land area in one growing season, rice farming is smaller, which is Rp 5,318,787.00 compared to the opportunity cost of corn and watermelon crops. The highest watermelon farming income among rice and corn is Rp 21,360,433.00, while corn farming income is Rp19.728.830.00. The difference in agricultural revenue is quite far away because the amount of production and selling prices are different in each commodity so that there is a significant difference nominally in the three farmers. In line with Azizi's research (2019) on comparative research on the income of rice farmers in legowo and legowo super alignments, there is a difference in income due to different production and revenues.

2.3 Comparison of Nominal Agricultural Income

The average agricultural income in one season an hectare received by respondents to rice, corn and watermelon has a considerable difference, especially in rice farming where the business income of rice respondents amounted to Rp9.510.234.00, corn farming amounted to Rp27.392.554.00 while the income of watermelon respondent farmers amounted to Rp 32,523,110.00. This is due to differences in production costs, production results and prices of each different commodity, in line with the opinion of Andriani (2018) who saidfarmers in managing their farmers aim to get the highest income. The high low income obtained by farmers from their agricultural products is determined by the small amount of the results obtained from the prevailing price and the amount of costs incurred in one production. The comparison data of the average income of rice, corn and watermelon farmers is presented in table 2.2.

Table 2.2 Comparison of Average an Hectare on Growing Season of Rice Farming Income with Opportunity Cost (Corn and Watermelon) in SubakPangyangan 2021

No	Description	Rice	Corn	Watermelon
1.	Produksi	5747	7317	20159
2.	Harga	3800/kg	5000/kg	2500/kg
	Penerimaan	Rp21.328.162	Rp36.587.142	Rp50.398.810
3.	Total BiayaTetap	Rp312.417	Rp1.024.054	Rp2.071.115
4.	Total BiayaVariabel	Rp11.494.399	Rp8.170.534	Rp15.804.585
	Total BiayaProduksi	Rp11.806.816	Rp9.194.588	Rp17.875.699
	PendapatanUsahatani	Rp 9.510.234	Rp27.392.554	Rp32.523.110
	R/C Ratio	2,00	4,00	2,82

Source: Data Primer, 2022

2.4 Comparison of Revenue by R/C Ratio

R/C ratio stands for Return Cost Ratio. R/C Ratio analysis is used to compare receipts and costs. R / C Ratio in rice farming in one growing season per hectare of 2.00 so it can be interpreted that each investment capital grant of Rp 1,000.00 will provide receipts of Rp 2,000.00. R / C ratio of corn farming in one growing season per hectare of 4.00can be interpreted that each investment capital of Rp 1,000.00 will provide receipts of Rp 4,000.00, while the R / C ratio of watermelon farmers in one growing season per hectare of 2.82 can be interpreted that each investment capital grant of Rp 1,000.00 will provide receipts of Rp

2,820.00. Based on the general explanation of the R / C ratio results in rice, corn and watermelon farming in SubakPangyangan can be said to be profitable or worthy of effort because the results of the R / C ratio of the three groups are more than one ($R / C > 1$). Based on the general explanation of the R / C ratio results in rice, corn and watermelon farming in SubakPangyangan can be said to be profitable or worthy of effort because the results of the R / C ratio of the three groups are more than one ($R / C > 1$). This result is in line with Gufron's research (2019) which states that the greater the value of R / C ratio will result in greater agricultural revenue compared to the production costs incurred in trying to farm in organic and inorganic rice farming research and deserve to be developed because the R / C ratio is more than one.

2.5 Statistical Comparison with One Way Anova Test

One Way Anova or One-Way Anova is used to test two or more independent groups of samples. To see the comparison of net income of rice, corn and watermelon farmers used a one-way anova test with a signification value of 5%.

Table 2.3 One-Way Anova Test

Farm Income					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17125552469	2	8562776234736	419.328	.000
	472232.000		116.000		
Within Groups	13681571685	67	2042025624774		
	99104.800		7.832		
Total	18493709638	69			
	071336.000				

Source: Output SPSS 25, 2022

Based on table 2.3, the results of the one-way anova test show the result of a value of 0.000, which is a signification value smaller than 0.05, meaning that H1 is accepted and H0 is rejected. There is a difference in the net income of rice farmers with opportunity costs, namely corn and watermelon in one growing season perhektar. This is because the difference between each net income per farmer group is quite far away, namely rice farming business amounting to Rp9.510.234.00, corn farming income of Rp 27.392.554.00, and watermelon farming income of Rp 32,526,710.00. This difference occurs due to differences in production costs and production results in the three farms, causing the receipt and income of the three farmer groups to be different. Corn income is highest among rice and watermelon, and rice income is lowest among corn and watermelon. The results of this study are in line with Gufron's research (2019) which states that there is a difference in agricultural income due to the total cost of production and acceptance of farmers differently.

3. Obstacles Faced by Farmers

Based on the results of research, the obstacles that are often faced by farmers trying to farm in SubakPangyangan are as follows.

3.1 Climate

An obstacle that is quite often complained by farmers based on research results is the existence of uncertain climate change. Uncertain climate change causes farmers to not be able to predict the weather well when doing their farming. When the dry season is long rice farmers will be difficult to get water because of the small irrigation water, so some rice farmers delay their planting period when getting enough irrigation water for their crops. Unlike watermelon plants that are suitable for planting during hot weather, watermelons will rot quickly if planted during the rainy season because they get too much water. The influence of uncertain weather conditions is what often makes farmers experience a decline in production or even experience production failure. According to Hidayati and Suryanto (2015) farmers can implement adaptation strategies to reduce the impact of losses due to climate change. Farmers can change planting patterns or shift planting times according to the arrival of the rainy season to reduce

the risk of crop failure. Farmers can also make infiltration wells around rice fields to irrigate rice fields when the dry season arrives.

3.2 Pests of the disease

Pests or plant diseases are one of the most common obstacles experienced by farmers in carrying out their farming. Pests and diseases that often attack plants in SubakPangyangan based on research results are rat pests, beetle and stem borer, while diseases are blas and leaf spots on rice plants. In corn crops, the pests that farmers most often complain about are rat pests, caterpillars and leafhoppers, while the disease that many farmers complain about is frond rot. Pests that often attack watermelon plants are leafpox, wilting on leafy spots, and aphids. These pests and diseases often cause farmers to experience a decrease in production if not handled properly.

3.2 Price

At certain times there are often price changes in agricultural commodities as well as commodities in SubakPangyangan. Based on the results of research on farmers' constraints, there are price changes at a certain time. For example, in corn crops when there is an increase in prices in the market, farmers who grow corn will increase so that when the harvest season arrives, corn will experience a decrease in price that will cause farmers to experience losses.

3.3 Finance/Capital

One of the factors of production in farming is capital. Based on the results of several researches from respondent farmers in SubakPangyangan, it is still difficult to get access to capital for developed agricultural businesses, so it is not uncommon to find that capital is one of the obstacles for farmers in SubakPangyang to manage or develop rice, corn and watermelon farming businesses.

3.4 Marketing

Based on the results of research, in terms of marketing constraints that are often faced by respondent farmers is a lack of information on market prices. The determination of the price of agricultural production is not in the farmer, so the farmer can only accept the price determined by the buyer or seller. In this case, the collector has an important role in the sale of agricultural products located in SubakPangyangan.

The results of this study are in line with previous research, namely the results of research from Agustyari (2013) which mentioned the constraints of rice farming, consisting of climate change, price changes, the limits of farmers' access to capital, transformation and communication problems, and lack of price information.

D. Conclusion

Based on the results and discussion of the previous chapter, the following conclusions can be drawn:

1. The net income of rice farming businesses with opportunity costs, namely corn and watermelon in SubakPangyangan, Pangyangan Village, Pekutatan District, is seen from the results of a nominal income comparison analysis obtained in one growing season perhektar, namely rice farming business amounting to Rp9.510.234.00, corn farming amounting to Rp 27.392.554.00, and watermelon farming amounting to Rp 32,526,710.00. The comparison in R / C ratio shows that rice farming is the lowest among the three types of farming, which is 2.00, while corn is 4.00 and watermelon 2.82. Statistical comparisons show a marked difference between the three types of farming at a level of 5%.
2. The obstacles faced by respondent farmers in SubakPangyangan, Pangyangan Village, Pekutatan District consist of climate change, price changes, pest and plant disease attacks, capital limitations, and prices when marketing.

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