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ANALYSIS OF SWEET CORN FARMING AND MARKETING IN RONTIK VILLAGE, BABULU DISTRICT PENAJAM PASER NORTH REGENCY, EAST KALIMANTAN PROVINCE

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ABSTRACT

Corn is a strategic food commodity and can be a substitute for rice and cassava. The purpose of this study is to determine the amount of production costs, revenues, income, profits of sweet corn farming, sweet corn marketing channels, marketing margins, shares, and marketing profits of sweet corn. This research was conducted in Rintik Village, Babulu District, and North Penajam Paser Regency from March to May 2023. The sampling method uses 2 methods, namely Snowball Sampling is used for marketing respondents with a total of 16 respondents, and census is used for farmer respondents with a total of 30 respondents. The data analysis methods used are cost analysis, revenue, R/ C ratio, margin, share, and marketing profits. The results showed an average production cost of 3,310,875.93 IDR/mt with average revenue of 10,118,833.33 IDR/mt; average revenue of 6,807,907.41 IDR/mt. Marketing channels used second-level channels (farmer-merchant gatherer-merchant retailer-consumer). The total margin of the merchant's marketing is 6,500 IDR/kg, and the total profit received in marketing is 5,702.49 IDR/kg. Based on the results of the study, shows that sweet corn farming in Rintik Village, Babulu District, North Penajam Paser Regency in the Rintik Sejahtera Farmer Group is economically feasible because it is profitable with an R/C Ratio value of 3.06. The share received by farmers is 27.7%.

KEYWORDS:

Sweet Corn, R/C Ratio, Marketing Channel, Share.



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INTRODUCTION

Corn is a strategic commodity that has multipurpose functions, both for food and feed. Corn is a substitute for rice and cassava for Indonesians and is the second staple food after rice. The corn plant in Indonesia is very well known by the public, and in some areas, it is even used as a staple food ingredient. The increase in population, and the development of the food industry and livestock industry, is driving the demand for corn to increase.

One type of corn plant that is now liked by many people is sweet corn because it has a sweeter taste than ordinary corn. Sweet corn cultivation has the potential to be developed because it can be developed throughout the year, the production period is short (maturing), and the price is quite high. Apart from that, sweet corn contains lower levels of protein, fat, and carbohydrates, so it can reduce cholesterol levels in the blood and reduce the possibility of developing heart disease. The development of sweet corn agribusiness is influenced, among other things, by the use of simple cultivation technology, the use of production facilities is still low, the recording of farming costs has not been carried out, marketing, and institutional support.

Based on data from [1] the average national corn productivity was 5.47 tons/ha, while East Kalimantan Province, which is also one of the provinces producing corn plants in 2020, had an average corn productivity of 5.25 tonnes/ha.

North Penajam Paser Regency is one of the areas that has the potential to develop corn cultivation in East Kalimantan Province. According to [2] and the Agriculture Service, corn production in 2020 in North Penajam Paser was 117 tons with a planting area of 330 ha. Babulu District is one of the districts located in North Penajam Paser Regency whose corn production is higher compared to other sub-districts based on the 2019 Central Statistics Agency (BPS) with corn production of 1,174.93 tons [3].

Rintik Village is one of the villages located in the Babulu District area, where many people in the village still work as farmers. One of the food crops they cultivate is sweet corn. Farmers in Rintik Village chose one of these sweet corn farms to cultivate because sweet corn provides relatively high profits when cultivated with shelled corn, especially in terms of the shorter plant life, so it can be profitable in terms of time. The large production and selling price of sweet corn in Rintik Village has quite a big meaning for the income of corn farmers considering that corn is a plant with quite a lot of potential. Apart from that, corn is easy to grow on all types of land used for agriculture and cultivation is not too difficult. The selling price of sweet corn in Rintik Village is 200,000 IDR/sack.

All types of businesses aim to maximize income by achieving maximum production levels or by reducing costs so that it is hoped that the income obtained will also be maximum. Likewise, sweet corn farming aims to obtain maximum income from these farming activities. However, the marketing aspect is the main obstacle in developing sweet corn farming. This is due to the nature of agricultural products, especially sweet corn, which are not long-lasting, easily damaged, and seasonal. So this marketing aspect can influence the selling price of sweet corn products.

Sweet corn farmers in Rintik Village, Babulu District, North Penajam Paser Regency, in running their farming business, have not taken into account detailed costs in calculating the costs of sweet corn farming. Based only on the value of money spent and received, the selling price of sweet corn in Rintik Village always depends on the collecting traders which cause low selling prices which influence the low income received by farmers.

This research aims to: (1) determine the production costs, revenues, and income of sweet corn farming, (2) analyze the profits of sweet corn farming, and (3) analyze the marketing channels for sweet corn in Rintik Village, Babulu District and calculate how big the marketing margin is. Share and marketing profits.

RESEARCH METHODS

This research was carried out from March to May 2023 in Rintik Village, Babulu District, North Penajam Paser Regency. Sampling in this research used saturated sampling or census. Saturated sampling or census is a sampling technique in which all members of the population are used as samples. The total number of sweet corn farmers who have joined the Rintik Sejahtera Farmer Group is 30 people who come from agricultural extension workers in Rintik Village, Babulu District, North Penajam Paser Regency. All 30 farmer respondents were used as samples in this research. Meanwhile, to collect respondents for sweet corn marketing actors using the snowball method (Snow Ball Sampling). There are 3 collecting traders and 13 retail traders. The total number of trader respondents was 16 people.

The data analysis method used is as follows:

1. Total production costs, total revenues, and sweet corn farming income are calculated based on the following formula:

a. Total production costs

$$TC = TFC + TVC$$

Description :

TC = Total Cost (IDR/ha/mt)

TFC = Fixed Cost (IDR/ha/mt)

TVC = Variable Cost (IDR/ha/mt)

b. Total Revenue

$$TR = Q \times P$$

Description:

TR = Total Revenue (IDR/ha/mt)

Q = Production Amount (Quality) (IDR/ha/mt)

P = Product Price (Price) (IDR/ha/mt)

c. Income

$$\Pi = TR - TC$$

Description:

Π = income (IDR/ha/mt)

TR = Total Revenue (IDR/ha/mt)

TC = Total Cost (IDR/ha/mt)

2. R/C Ratio

Sweet corn farming profits are analyzed based on the R/C Ratio, namely the comparison between total revenue and total costs. With the following formula:

$$R/C \text{ Ratio} = TR/TC$$

Description:

$R/C > 1$, then the business undertaken is profitable

$R/C = 1$, then the business carried out has no profit and no loss

$R/C < 1$, then the business undertaken is not profitable

3. Marketing channels, marketing margins, farmer's share, and marketing profits are analyzed and calculated in the following way [4]:

a. The sweet corn marketing channels used at the research location were analyzed using quantitative descriptive analysis by describing the collected marketing channel data. The

marketing margin is calculated based on the following formula:

$$M_p = H_p - H_b$$

Description:

M_p = Marketing Margin (IDR/kg)

H_p = Sales Price (IDR/kg)

H_b = Purchase Price (IDR/kg)

b. Farmer's Share is calculated based on the following formula:

$$F_s = P_f/P_s \times 100\%$$

Description:

F_s = Share of Price received by Farmers (farmer's share)

P_f = Farmer's Price (IDR/kg)

P_s = Retailer Level Price (IDR/kg)

c. Profit (profit) is calculated based on the following formula:

$$n = M_p - B_t$$

Description:

n = Profit

M_p = Marketing Margin

B_t = Total Cost

RESULTS AND DISCUSSION

A. Characteristics of Farmer Respondents

The farmer respondents are of productive age. The majority of farmers' education is in senior high school (50%), junior high school (23.33%), and college (13.33%). The number of family dependents of respondents is 1-2 people, namely 15 people (50.00%), and the number of family dependents of respondents of 3-4 people is 10 people (33.33%), and the number of dependents of 5-6 people is 5 people (16, 67%). Land area influences the amount of farmers' production. Sweet corn farmers in Rintik Village have land areas ranging from 0.5-1 ha with an average of 0.62 ha. The status of the land is generally owned by the farmers themselves.

Table 1. Characteristics of Respondents

No	Characteristics of Farmer	Farmers (People)	Percentage (%)
Education			
1	No school	1	3,33
2	Elementary school	3	10,00
3	Junior high school	7	23,33
4	Junior high school	15	50,00
5	College	4	13,33
The number of dependents (People)			
1	1-2	15	50,00
2	3-4	10	33,33
3	5-6	5	16,67
Land Area			
1	0,3-0,5	17	56,66
2	0,6-0,8	5	16,67
3	1,00	8	26,67

Source: Primary Data

(processed 2002)

B. Characteristics of Trader Respondents

The age of collecting traders ranges from 25-40 years. Education level 100% at high school level.

Table 2. Distribution of Collector Traders Based on Age

N	Age group (years)	Traders Collectors (people)	Percentage (%)
1	25-30	1	33,33
2	31-35	0	0,00
3	36-40	2	66,67
N	Education	Number (People)	Percentage
1	Elementary school	0	0,00
2	Junior high school Senior high	0	0,00
3	school	3	100,00

Source: Primary data processed, 2023

The average volume of purchases made by collecting traders was 1,885 kg of wet sweet corn cobs. The total volume of sweet corn purchases made by collecting traders can be seen in Table 3 as follows:

Table 3. Sweet Corn Purchase Volume

No Respondent	Purchase Volume (kg)
1	3.360
2	1.170
3	1.125
Amount	5.655
Average	1.885

Source: Primary data processed, 2023

C. Characteristics of Retailer Respondents

The age of retailers ranges from 31-54 years. All trader respondents are at the high school education level.

Table 4. Distribution of Retailers Based on Age

No	Age group (years)	Traders (people)	Percentage (%)
1	31-38	7	53,84
2	39-46	4	30,78
3	47-54	2	15,38
No	Education	Amount (People)	Percentage (%)
1	Elementary school	0	0
2	Junior high school Senior	0	0
3	high school	13	100
Amount		13	100

Source: Primary data processed, 2023

D. Retailers' Sweet Corn Purchase Volume

The average purchasing volume of retailers is 127 kg of wet sweet com cobs. The total volume of sweet corn purchases made by retailers can be seen in Table 5 as follows:

Table 5. Sweet Corn Purchase Volume

No Respondent	Purchase Volume (kg)
1	117
2	156
3	84
4	126
5	112
6	180
7	78
8	126
9	168
10	168
11	90
12	168
13	78
Amount	1651
Average	127

Source: Primary data processed, 2023

E. Farming Production Costs

The production costs of sweet corn farming in the Rintik Sejahtera farmer group are the total costs used or incurred in the production process. The production costs calculated in this research consist of fixed costs and variable costs.

The sweet corn seeds used by the Rintik Sejahtera Farming Group are Exsotic Pertiwi seeds with an average seed usage of 4.87 kg/ha. The potential yield of Exotic Pertiwi seeds is 18 tonnes/ha. Labor uses family labor and labor outside the family. The planting frequency per year is 3 times planting. The fertilizers used in sweet corn farming are Phonska and Urea Fertilizers with an average use of 59.67 kg/ha for each type of fertilizer.

The total costs incurred by sweet corn farmers in the Rintik Sejahtera farming group in one planting season are an average of 3,310,875.93 IDR/mt (planting season). while the average expenditure for sweet corn farming per hectare is 5,368,987.99 IDR/mt/ha. The total costs can be seen in Table 6.

Table 6. Average Cost of Sweet Corn Farming

No	Description	Average (IDR/mt)	Average (IDR/mt/ha)
1	Seed costs	1.206.666,67	2.080.000,00
2	Fertilizer costs	192.400,00	355.333,33
3	Pesticide costs	212.500,00	404.000,00
4	Equipment depreciation costs Labor costs	68.859,26	124.201,00
5	Other costs	1.355.000,00	2.533.055,56
6		275.450,00	446.675,68
	Amount	3.310.875,93	5.368.987,99

Source: Primary data (processed, 2023) mt = planting season

Based on the data in Table 1, it shows that the largest costs incurred in the sweet corn farming production process are labor costs at 47.18%, followed by seed costs at 38.74 of the total production costs. [5] (Wahyuni & Afriani, 2022) also found large labor costs in sweet corn farming carried out in Tarakan City. Meanwhile, fertilizer costs are only 6.62% of total production costs. This shows that the use of fertilizer in cultivation is still low.

F. Revenue

Revenue is the gross result received by farmers in the production process. To determine revenue, this can be done by multiplying the amount of production by the product/selling price. The selling price of sweet corn at the farmer level ranges from 2,500-3,000 IDR/kg. The amount of production produced was 6,231.44 kg/ha. The average receipt is 10,118,833.33 IDR/mt. If converted into hectares, the average revenue is 15,578,611.11 IDR/mt/ha. Sweet corn production achievements in Rintik Village are lower compared to production achievements in Manunggal Jaya Village of 7,855.56 kg/ha [6].

G. Income

Income is the net/final result obtained by farmers in the production process by reducing the total income from the costs incurred during the production process. The income received by 30 respondents from sweet corn farmers in the Rintik Sejahtera farmer group was Rp 204,237,222.22/mt with an average of 6,807,907.41 IDR/mt. When converted to hectares it is 294,541,053.24 IDR/mt/ha with an average of 9,818,035.11 IDR/mt/ha. The results of this research are research [6] in Manunggal Jaya Village where the income per hectare of sweet corn was obtained in proportion to the income. Research [7] provides an alternative so that sweet corn farmers' income can increase. This can also be done by diversifying fresh sweet corn products into processed food products that provide added value and higher selling prices.

H. Revenue/Cost Ratio (R/C Ratio)

The R/C Ratio is an analysis used to measure the comparison between revenue and production costs incurred by farmers. In other words, the R/C Ratio is used to find out whether the sweet corn farming activities carried out by farmers are profitable or unprofitable.

$R/C \text{ Ratio planting season} = (\text{Average Revenue})/(\text{Average Cost}) = 10,118,833.33/3,310,875.93 = 3.06.$

R/C Ratio assessment criteria:

- $R/C > 1$: then the business undertaken is profitable.
- $R/C = 1$: then the business carried out has no profit and no loss.
- $R/C < 1$: then the business undertaken is not profitable.

According to the R/C Ratio criteria, it is more than 1, which means it is profitable. So it can be concluded that economically, sweet corn farming in the Rintik Sejahtera farmer group in Rintik Village, Babulu District provides benefits to farmers and is worth cultivating. The R/C ratio achieved by sweet corn farming in Rintik Village is higher compared to the R/C ratio achieved in Tani Aman Village, Loa Janan, which is 2.1 [8].

I. Marketing of Sweet Corn Farming

1. Marketing channels

The marketing channels obtained in marketing sweet corn in the Rintik Sejahtera farmer group in Rintik Village are as follows:

Farmers ==>Collectors ==>Retailers ==>Consumers

Figure 1. Rintik Sejahtera Farmers Group Sweet Corn Marketing Channels

Figure 1 shows that the marketing channel used in Rintik Village is a two-level channel, where farmers sell their sweet corn production to collectors, then collectors resell it to retailers and retailers sell it to consumers. Collecting traders buy sweet corn from farmers for 200,000-250,000 IDR/sack and sales per kg of wet sweet corn cobs are sold for around 2,500 - 3000 IDR/kg. Collecting traders resell the sweet corn to retailers for 220,000-270,000 IDR/sack or the price when sold per kg of wet sweet corn cobs is 4,500-5,000 IDR/kg. After that, retailers sell sweet corn for 9,000-10,000 IDR/kg to consumers.

The two-level marketing channel chosen by farmers in Rintik Village takes into account the distance from the farming location to the market. This is in line with research [9] where research shows that direct marketing from producers to consumers is more profitable, but due to limited ability to market their own products, they choose to sell to collectors.

2. Marketing Margin

The detailed sweet corn marketing margins are in Table 7 as follows:

Table 7. Sweet corn marketing margin

No	Institutions and components of marketing costs	Marketing margin	Selling/buying costs (IDR/kg)	Marketing costs (IDR/kg)
1	Farmer Selling price		2.500	
2	Collector Trader Purchase price Cost: a.Transportation b.Transportation costs Total costs Selling price Marketing margin Profit	2.000	2.500 4.500 1.750,67	 212,20 37,13 249,33
3	Retailer Purchase price Cost: a.Transportation costs b. plastic c. total costs Selling price Marketing margin Profit	4.500	4.500 154,48 393,70 548,18 9.000 3.951,82	
4	Consumer Purchase price		9.000	

Source: Primary data (processed, 2023)

Based on the data in Table 2, it shows that in the marketing channel, the margin received by collecting traders is Rp 2,000/kg, the marketing margin for retailers is 4,500 IDR/kg. Total marketing

margin is 6,500 IDR/kg. The biggest costs incurred by traders are transportation costs. The costs incurred by traders are very low compared to the profits they take.

3. Share Marketing

In determining the Farmer's share in sweet corn marketing in the Rintik Sejahtera Farmers Group, Rintik Village, this can be done by comparing prices at the farmer level with prices at the retailer level. Farmer's share of sweet corn in Rintik Village, Babulu District is as follows:

$$F_s = \frac{P_f}{P_s} \times 100\%$$

$$F_s = \frac{2.500}{9.000} \times 100\% = 27,7\%$$

The share received by farmers in Rintik Village is very low compared to the share received by farmers in other corn farming locations with two-level marketing channels (Manunggal Jaya Village 55.35% [6]; Tarakan City 72% [5]; Kayuagung District 70% [10]). The low share received by farmers is due to the long distance of farming from the market and the lack of price information obtained by farmers. Research [11] shows that efforts can be made to increase the share farmers in marketing sweet corn is building partnerships in marketing.

4. Marketing Benefits (Profit)

Marketing profit is the difference between the margin and the costs incurred to market sweet corn. Total marketing costs are the costs incurred during the sweet corn marketing process. Based on the research results, the marketing costs for sweet corn in the Rintik Village of the Rintik Sejahtera Farmers group include transportation costs and loading and unloading costs. The profit received by collecting traders was 1,750.67 IDR/kg and the profit received by retail traders was 3,951.82 IDR/kg. The total profit from marketing sweet corn is 5,702.49 IDR/kg.

CONCLUSION AND SUGGESTIONS

A. Conclusion

Based on the results of data analysis and discussion, it can be concluded as follows:

1. The average production cost, revenue and income of sweet corn respectively in one planting is 5,760,576.00 IDR/mt/ha; 15,578,611.11 IDR/mt/ha; 9,818,035.11 IDR/mt/ha.
2. The R/C ratio of sweet corn farming in Rintik Village, Babulu District is 3.06 and is profitable to cultivate.
3. The marketing channel for sweet corn in Rintik Village, Babulu District, North Penajam Paser Regency is a two-level marketing channel (farmer - collector - retailer - consumer). The total marketing margin is 6,500 IDR/kg. The profit received by the collector is 1,750.67 IDR/kg and the profit received by retailers was IDR 3,951.82/kg. The share received by farmers was 27.7%.

B. Suggestions

1. Sweet corn farming income can be further increased by increasing the use of fertilizer to increase farming productivity or diversifying output from fresh sweet corn to processed products so that product prices are higher.
2. Sweet corn farming can be continued by implementing good cultivation techniques so that productivity is high and can provide profits for farmers.

Farmers are expected to make efforts to market directly by forming certain groups or partnering with other institutions.

BIBLIOGRAPHY

- [1] BPS. 2020. Analysis of Corn and Soybean Productivity in Indonesia (Ubinan Survey Results). BPS Indonesia. January 17, 2022.
- [2] BPS. 2021. North Penajam Paser Regency in Figures. North Penajam Paser Regency.
- [3] BPS. 2019. Corn and Soybean Production by District in North Penajam Paser Regency (ha). BPS North Penajam Paser Regency. December 1, 2021.
- [4] Wahyuni, E., Afriani, N. (2022). Analysis of Farming Cost Structure and Marketing. J-PENBorneo: Journal of Agricultural Sciences 5(2): 1-7.
- [5] Meilisa, R. S. A. (2017). Study of Farming Income and Marketing of Sweet Corn (*Zea mays* L. Saccharata) in Manunggal Jaya Village, Sebulu District, Kutai Kartanegara Regency. Journal of Agricultural & Development Economics, 14(2): 26-38.
- [6] El Hasanah, L. L. N., & Isfianadewi, D. (2019). Diversification of Sweet Corn Processed Food as an Agro-Industry Development Effort in Soropaten Village. J-Dynamics: Journal of Community Service, 4(1): 28-33. <https://doi.org/10.25047/j-dynamics.v4i1.1045>
- [7] Patmawati, A., Suriaatmaja, M. E., & Widuri, N. (2021). Analysis of Income from Sweet Corn Farming in Tani Aman Subdistrict, Loa Janan Ilir District, Samarinda City (Analysis of Income of Sweet Corn Farming in Tani Aman Urban Village Loa Janan Ilir Subcity Samarinda City). Journal of Agribusiness and Agricultural Communication, 4(2): 67. <https://doi.org/10.35941/iakp.4.2.2021.5173.67-74>
- [8] Perkasa, D., & Noviani, N. (2023). Analysis of Farming and Marketing Systems for Sweet Corn (*Zea mays* L. Saccharata). Agro Nusantara Journal, 3(1): 41-49. <https://doi.org/10.32696/jan.v3i1.2001>
- [9] Susanti, E., & Gultom, N. F. (2023). Analysis of Marketing Efficiency of Sweet Corn (*Zea mays* L.) in Kayuagung District, Ogan Komering Ilir Regency. Analysis of Marketing Efficiency of Sweet Corn (*Zea mays* L.) in Kayuagung District, Ogan Komering Ilir Regency. 4(February), 1285-1295.
- [10] Tresnati, R. (2014). Study of Partnerships to Increase Farmers' Income in Sweet Corn Farming in Ciamis Regency. Journal of Management and Business (Performance), 11(2): 1-12.