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Palm Sugar Value Addition in Palm Sugar Agroindustry

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Abstract

Keywords:

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The existence of agro-industry in rural areas is expected to increase the demand for agricultural products. In Tinggo village, Tanggetada district, Kolaka regency, the processing of sugar palm seedlings into value-added products is still lacking. With the existence of agro-industrial palm processing activities, it is expected that the agricultural products (palm cultivation) will be transformed into value-added products. The purpose of this study is to determine the value addition and feasibility of sugar palm agro-industry in Tinggo Village, Tanggetada District, Kolaka Regency. The data analysis method used is Hayami's value added analysis and R/C ratio analysis. The results showed that the added value of sugar palm was Rp 1,750/unit, which means that the income of actors in the sugar palm agribusiness increased by an additional Rp 1,750/unit. And the value of R/C ratio is 1.73, which means palm sugar agro-industry is feasible to develop. This research is important to conduct so that it becomes a source of information that palm sugar processing agribusiness is feasible as it has added value that can help increase the income of sugar palm producers.

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INTRODUCTION

Tinggo Village is one of the centers of palm sugar production in Tanggetada District, Kolaka Regency. The number of palm sugar plants is the main factor, so it has become one of the producing areas of the palm sugar agroindustry. Palm sugar processing done by the people of Tinggo Village, Tanggetada District, Kolaka Regency with raw materials derived from the use of palm trees has not been intensively cultivated. This is one of the problems as it will lead to shortage of raw materials for the sustainability of the business. Every entrepreneur who conducts business activities certainly expects their business to be able to generate big profits and ensure business continuity. Processing sap raw materials into value-added products can generate additional profits and help increase revenue.

The existence of sap agro-industry in rural areas is expected to increase the demand for processed sugar palm products. In Tinggo village, Tanggetada district, Kolaka regency, the processing of sugar palm seedlings into value-added products is still lacking. With the existence of agro-industrial palm processing activities, it is expected that the agricultural products (palm cultivation) will be transformed into value-added products. The business analysis of this study should be carried out to determine the level of profit that can be obtained and can provide insight into the long-term planning of plant sap-to-palm sugar processing activities.

Value added is the added value of a commodity because it undergoes processing, transportation, or storage in production. The processing of sap into palm sugar is a process carried out to obtain the added value that farmers can obtain from processing one liter of sap into palm sugar (Maulana, Miftah, and Yusdiarti 2018). Likewise, Prasetyo et al. (2018) state that added value is an activity carried out to increase the use value and form of an agricultural commodity through the processing process.

Demand for palm sugar tends to increase because it is believed to increase and maintain endurance. Small-scale industries mainly process palm sap into palm sugar because the palm sugar agroindustry is efficient in cultivating (Faliha et al. 2022). Palm sugar is also an excellent alternative to regular sugar because of its low glycemic index and no side effects, so it is better for health than ordinary or conventional sugar or other natural preservatives (Framita et al. 2021). Sugar palm has a relatively large potential because all plant parts can be utilized. One of them is palm sap which is processed into palm sugar. The demand for palm sugar is relatively higher than other products because of its nutritional content and health benefits. Opportunities for the development of the palm sugar agroindustry are still open, both in terms of the availability of raw materials and the demand for processed products (Supriyati & Suryani, 2016).

The novelty of this research is to analyze and examine what added value will be obtained if palm seedlings are processed into palm sugar (brown sugar) and the feasibility of palm sugar agro-industry. The previous research was only to know the amount of costs, revenues and revenues received by palm sugar artisans and the amount of the break-even point of acceptance. The purpose of this research consists of two objectives. The first research objective is to know to what extent the added value

explains the increase in income that will be obtained by the actors of the palm sugar processing agro-industry. The second research objective is to discover and analyze the commercial feasibility of sugar palm agro-industry in Tinggo village, Tanggetada district, Kolaka regency, which will determine whether the sugar palm agro-industry palm is achievable or not.

RESEARCH METHODS

Based on the problems encountered in accordance with the actual conditions occurring on the ground, this research was conducted in Tinggo Village, Tanggetada District, Kolaka Regency, Southeast Sulawesi Province. Tinggo village is one of the sugar palm production centers in Tanggetada district, Kolaka regency. The number of sugar palm plants is the main factor for it to become one of the production areas or agro-industry of palm sugar.

Based on the description of the research issues that were stated earlier, this research was conducted from May to June 2022. The time used by the researchers for this research was from the date of issuance of the permit or the research assignment letter within approximately two months. This search was conducted in accordance with previously established procedures and search schedules.

Population is a group of individuals who have particular characteristics, qualities, and characteristics needed by researchers. The population of this study is palm sugar agro-industry in Tinggo village which has up to 4 agro-industry. As for the sample of this study, namely the owners/actors of the palm sugar agribusiness up to 4 people.

The collection of data for this research was carried out in three ways, namely: observation method, method of collecting data by direct observation of the object to be studied. Interview method, method of collecting data by conducting direct interviews with palm sugar artisans using a list of questions or questionnaires prepared in advance. Method of recording, method of collecting data by recording all sources related to this research.

Data analysis method is a process of processing data into new information. This process is carried out with the aim of making the characteristics of the data easier to understand and useful as a solution to a problem, especially related to research. The data analysis tools used are based on the research objectives, namely: for the purpose of the first research i.e. to find out what added value palm sugar uses the Hayami added value analysis which can be seen in Table 1.

Table 1. Calculation of the added value of the modified Hayami method

	Output, Input dan Price	Rating
1	Output (fruit/kg/production)	A
2	Raw material (kg/production)	B
3	Labor (HOK)	C
4	Convention factor (1/2)	D = A/B
5	Labor coefficient (3/2)	E = C/B

6	Product price (Rp/kg)	F
7	Average wage of labor (Rp/HOK)	G
Income and Profit		
8	Price of raw material (Rp/kg)	H
9	Other input contribution (Rp/kg)	I
10	Product value (Rp/kg) (4 x 6)	$J = D \times F$
	a. Added value (Rp/buah) (10-8-9)	$K = J - I - H$
11	b. Value added ratio (%) (11a/10) x 100 %	$L \% = (K/J) \times 100 \%$
	%	
12	a. Labor benefit (Rp/kg) (5x7)	$M = E \times G$
	b. Labor share (%) (12a/11a) x 100%	$N \% = (M/K) \times 100\%$
13	a. Profit (Rp/kg) (11a-12a)	$O = K - M$
	b. Profit rate (%) (13a/11a) x 100%	$P \% = (O/J) \times 100 \%$

The data analysis method for the second research objective is to determine the feasibility of palm sugar agribusiness using R/C ratio analysis. The R/C ratio is a comparison between total revenues and production costs using the following formula.

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

The criteria for the results of the R/C ratio are as follows:

R/C > 1, the business deserves to be developed

R/C = 1, work at equilibrium

R/C < 1, the business is not worth developing

RESULT AND DISCUSSION

Value Added Analysis

Added value is an increase in the value of palm sugar because it has undergone a process of transformation into palm sugar. Palm sugar is the result of processing palm sap water, which has increased added value. The increase in value addition certainly increases the welfare of actors in the sugar palm agribusiness in Tinggo village, Tanggetada district, Kolaka regency. This is in line with research conducted by Surni & Saediman, (2020), the sugar palm plant in his research has been developed into a value added product i.e. palm sugar, the process of turning palm plants into sugar palm starting from the process of preparing bleeding, bleeding and filtering the sap, cooking, mixing, forming or printing, packing until marketing. In addition, palm sugar can also be developed into a product in the form of palm sugar syrup, such as research conducted by Naknean et al., (2013), which indicates that palm sugar has been developed into a value-added product. added, especially in the form of palm sugar syrup which is a sugar product whose quality meets the Thai state regulatory standards for palm sugar syrup products with a storage of 12 months. Similar to the research that was done by Ishak et al., (2013) who stated that the sugar palm plant in his research was developed into a renewable energy source in the form of bioethanol through the fermentation process of the palm sap. Although many products can be made from palm sugar, the three products that stand out the most are palm sugar.

The added value of palm sugar was analyzed to determine the added value of palm sugar to palm sugar. The research conducted by Julitasari and Suwarta (2020) and Maulana et al. (2018) states that one of the uses of calculating added value is to measure the magnitude of services to factors of production. In essence, added value is the production value with raw materials and supporting materials used in the production process.

The purpose of doing palm sugar agroindustry is to provide added value from palm sugar which will be processed into printed palm sugar. This is in line with research Framita et al. (2021), which states that agroindustry efforts are carried out to provide added value from agricultural products to be processed, namely from palm sap raw materials into palm sugar. The added value is obtained from reducing output value to the price of raw materials minus other inputs, excluding labor costs. The analysis of the added value of palm sugar in this study can be seen in Table 1.

Table 2. Analysis of Added Value of Palm Oil in Tinggo Village, Kolaka Regency

Nu	Description	Amount
1	Palm sugar (unit)	20
2	Raw material/sap water (liter)	150
3	Labour (JKO/year)	3
4	Conversion factor (1/2)	0.13
5	Labor coefficient	0.02
6	Product price (Rp/kg)	25,000
7	Average wage of labor (Rp/JKO)	70,000
8	Price of raw material (Rp/liter)	1,500
9	Other input contribution (Rp)	-
10	Product value (Rp/kg)	3,250
11	a. Value added (Rp/unit) (10-8-9)	1,750
	b. Value added ratio (%) (11a/10) x 100 %	53.8
12	a. Labor benefits (Rp/liter) (5x7)	1,400
	b. Labor share (%) (12a/11a) x 100%	80
13	a. Profit (Rp) (11a-12a)	350
	b. Profit rate (%) (13a/11a) x 100%	10.8

Source: Primer Data 2022

Based on table 1 shows that the results of the analysis of the added value of palm sugar into palm sugar is Rp. 1.750/unit, with a ratio of 53.8%, which means that the processing of sap water into palm sugar increases the added value of 53.8 % of the value of the resulting output is high. This is in line with the research conducted by Faliha et al. (2022) and Lilis et al. (2022), which state that processing sap into palm sugar provides a relatively high added value to the output value produced. Likewise, the research that has been done by Febri et al. (2021); Maulana et al. (2018); and Prasetyo et al. (2018) stated that the processing of sap raw materials is categorized as high added value because the percentage of added value produced is more than 40%.

However, this is not in line with or different from the research conducted by Framita et al. (2021), which states that the added value resulting from processing palm sugar is in the medium category and almost close to the low category because the value-added ratio value obtained in the study below or less than 40%. The processing

of sap into palm sugar is more profitable than processing sap into molded sugar because the ratio of the added value of sap to ant sugar is greater than the ratio of the added value of sap to molded sugar. The profit in the palm sugar agroindustry per liter of raw material is higher than the profit in the printed sugar agroindustry per liter of raw material (Rasti et al., 2020).

The raw material in this study is 150 liters of sap water, which is processed to produce 20 units of palm sugar. The price of palm sugar is IDR 25,000/unit. The conversion factor is 0.12, which is the ratio of the yield of palm sugar with the amount of raw material for sap water. The conversion factor value shows that every 150 liters of sap water can produce 20 units of palm sugar. This is in line with the research conducted by Maulana et al. (2018), which states that the conversion factor value compares output and input. The value of the conversion factor indicates that each amount of certain raw materials (inputs) can produce a certain amount of processed products (outputs).

Based on the analysis of added value, the palm sugar agroindustry gains a profit of Rp. 350 or a profit rate of 10.8% of the product value. This advantage shows the total profit obtained from each processing of sap water into palm sugar. This is in line with the research by Febri et al. (2021) and Faliha et al. (2022) that the processing of palm sugar agroindustry into palm sugar could provide benefits for palm agroindustry players. Likewise, the research by Lestari, Haryono, and Murniati (2020); Nurdasanti, Rochdiani, and Setia (2021) showed that palm sugar agroindustry activities processing palm into sugar provide benefits to palm sugar agroindustries. It is hoped that these agroindustry actors can improve their products by developing or implementing innovations related to other products.

Business Feasibility Analysis

A business financial feasibility analysis was conducted to determine whether or not the palm sugar agroindustry is feasible to develop. The feasibility analysis is calculated using an R/C ratio tool that compares the total revenue (Total Revenue/TR) with the total cost (Total Cost/TC). The analysis results show that the value of the R/C ratio is 1.73, which means that for every expenditure of Rp. 1, it will be able to generate revenue of Rp. 1.73. This value is greater than 1 (R/C ratio > 1), meaning that the palm sugar agroindustry in Tinggo Village, Tanggetada District, Kolaka Regency has been efficient and feasible to be developed. This is in line with the research conducted by Prasetyo et al. (2018), which states that a business financial feasibility analysis is carried out to determine whether the business activity or agroindustry is feasible to be developed. If the result of the R/C ratio is > 1, then the agroindustry should be developed.

Likewise, the research that has been done by Febri et al. (2021); Faliha et al. (2022) states that the value of the ratio between revenues and costs also shows that a business can be said to have been running efficiently and is feasible to be developed. If the value of the R/C ratio > 1, as in this study, $1.73 > 1$. That means that every Rp. 1 of the cost spent in palm sugar agroindustry activities will provide a revenue of 1.73

times the costs incurred. Although the efficiency value is not very large, the efficiency of this agroindustry needs to be improved again because the palm sugar processing business requires a long process.

Increased efficiency in terms of costs and using raw materials needs to be improved to increase or enlarge the added value of palm sugar. This is in line with the research conducted by Bustam and Sabrab (2021), which states that for palm sugar farmers to increase the added value of the products produced, these farmers need to continue to make efficiency, especially in terms of costs and the use of raw materials used. Performing efficiency in using raw materials, the availability of raw materials must also be increased. The solution that can be suggested is that if the local government wants to develop more palm sugar products, it can or must carry out a massive palm tree planting program.

CONCLUSION

The transformation of sap water into palm sugar brings an increase in added value compared to the high production value produced. The value of the R/C ratio obtained indicates that for each expense incurred, it will be able to generate or obtain an income equal to the value of the R/C ratio. This means that sugar palm agroindustry in Tinggo village, Tanggetada district, Kolaka regency has been efficient and feasible to be developed.

RECOMMENDATION

Based on the research findings and conclusions, the suggestions that can be made are that further research implementation can be done by analyzing the product development strategies and marketing strategies of palm sugar. Because the limit of this research is only to determine the added value and the feasibility of the palm sugar agro-industry.

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