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Economic and Financial Viability of Coconut Sugar Agribusiness in Kokap District, Kulon Progo Regency

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A B S T R A C T

Coconut sugar is one of the key agro-based products derived from coconut plants and widely developed in Kapanewon Kokap, Kulon Progo Regency, Indonesia. Understanding the business scale, profitability, and future prospects of this commodity is essential to support sustainable rural economic development. Therefore, this study aims to analyze the financial feasibility of coconut sugar enterprises in the study area.The research was conducted in Kapanewon Kokap and involved 100 coconut sugar artisans selected using a purposive sampling approach. Data were collected through field surveys and structured interviews. The financial feasibility analysis employed several key indicators, including the Revenue-Cost (R/C) ratio, capital productivity, and Break Even Point (BEP), covering production, revenue, and selling price dimensions.The results show that coconut sugar enterprises are financially feasible and profitable. The R/C ratio was calculated at 1.18, indicating that the business generates returns exceeding total production costs. Capital productivity reached 18%, reflecting efficient utilization of invested capital. Furthermore, the BEP analysis revealed that the break-even production level was 1.82 kg, the break-even revenue was IDR 39,822 per month, and the break-even selling price was IDR 3,813 per kg. These findings demonstrate that coconut sugar production operates above the minimum threshold required to avoid losses.In conclusion, the coconut sugar business in Kokap District, Kulon Progo Regency is financially viable and has promising potential for further development.

Keywords: Home-Industry, Feasibility, Coconut Sugar

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INTRODUCTION

The agricultural sector continues to play a vital role in supporting rural livelihoods and economic development in many developing countries, including Indonesia. Within this sector, plantation-based commodities such as coconut have long been recognized as strategic resources due to their wide range of derivative products and economic value. One such derivative product is coconut sugar, which has gained increasing attention as a natural sweetener with both domestic and international market potential. In regions like Kokap District, Kulon Progo Regency, coconut sugar production has become an important source of income for rural households, particularly among small-scale artisans who rely on traditional processing methods.

Coconut sugar agribusiness represents a unique integration of agricultural production and small-scale processing activities. Unlike other plantation commodities that are typically sold in raw form, coconut sap is directly processed into sugar, creating added value at the farm level. This characteristic provides an opportunity for farmers to increase their income through value-added activities. However, despite its potential, the sustainability and growth of coconut sugar enterprises are highly dependent on their economic and financial viability. Without a clear understanding of profitability and efficiency, it is difficult for producers and policymakers to make informed decisions regarding business expansion and resource allocation (Abbaspour et al., 2021).

In recent years, the demand for coconut sugar has increased significantly, driven by growing consumer awareness of healthier and more natural food products. Coconut sugar is often marketed as a low-glycemic alternative to refined sugar, which has contributed to its rising popularity in both domestic and export markets. This trend presents an opportunity for regions like Kokap District to strengthen their position as coconut sugar production centers. Nevertheless, increasing market demand also requires improvements in production capacity, quality consistency, and cost efficiency, all of which are closely linked to the financial performance of the business.

Financial feasibility analysis is a crucial tool for evaluating the sustainability of agribusiness enterprises. It provides a systematic approach to assess whether a business can generate sufficient returns to cover its costs and yield profit over time. Common indicators used in financial analysis include the Revenue-Cost (R/C) ratio, capital

productivity, and Break Even Point (BEP). These indicators offer insights into business efficiency, profitability, and risk levels. For instance, an R/C ratio greater than one indicates that the business is profitable, while BEP analysis helps identify the minimum production or revenue required to avoid losses (Moriasi et al., 2023).

In the context of small-scale agro-industries such as coconut sugar production, financial analysis becomes even more important due to the limited resources available to producers. Most coconut sugar artisans in Kokap District operate under traditional systems with relatively low levels of technology adoption. Production processes are often labor-intensive, and access to capital, market information, and modern equipment remains limited. These constraints can affect production efficiency and ultimately influence the profitability of the business. Therefore, evaluating the financial viability of coconut sugar enterprises is essential to identify existing challenges and potential areas for improvement.

Another important aspect to consider is the role of local economic conditions in shaping agribusiness performance. Kokap District is characterized by hilly terrain and limited infrastructure, which can affect both production and distribution activities. Transportation costs, access to markets, and availability of raw materials are key factors that influence the overall cost structure of coconut sugar production. In addition, fluctuations in input prices and market demand can create uncertainty for producers, making financial planning more complex (Singh et al., 2021).

Furthermore, the development of coconut sugar agribusiness is closely linked to rural development strategies. By enhancing the economic viability of this sector, it is possible to create employment opportunities, reduce rural poverty, and promote local economic growth. Small-scale agro-industries like coconut sugar production also contribute to the diversification of rural income sources, which is particularly important in regions that are vulnerable to agricultural risks such as climate variability and land degradation.

Despite its importance, there is still a need for comprehensive studies that specifically examine the economic and financial viability of coconut sugar enterprises at the local level. Many existing studies focus on general agricultural production without addressing the unique characteristics of agro-processing activities. In addition, variations in

local conditions mean that findings from one region cannot always be generalized to another. Therefore, location-specific research is necessary to provide accurate and relevant insights for decision-making. This study aims to evaluate the economic and financial viability of coconut sugar agribusiness in Kokap District, Kulon Progo Regency. The analysis focuses on key financial indicators, including the R/C ratio, capital productivity, and Break Even Point, to assess the profitability and sustainability of the business. By examining these indicators, the study seeks to determine whether coconut sugar production can be considered a viable economic activity for rural communities in the study area.

The findings of this study are expected to provide valuable contributions to both academic research and practical policy development. From an academic perspective, the study adds to the growing body of literature on agribusiness financial analysis, particularly in the context of small-scale agro-industries. From a practical standpoint, the results can serve as a reference for farmers, entrepreneurs, and policymakers in designing strategies to improve the performance and competitiveness of coconut sugar enterprises. Plantations are the leading subsector in the agricutural sector. Plantations contribute 38.88% to the PDB (Product Domestic Bruto) of the agricultural sector in the 2020-2022 period (Pusat Data dan Sistem Informasi Pertanian, 2023). One of the commodities cultivated in the plantation subsector is coconut plant. Coconut cultivation in Indonesia is dominated by PR (Perkebunan Rakyat) with a total cultivated area of 99.04% (Pusat Data dan Sistem Informasi Pertanian, 2023).

This coconut plant has the potential to be used as a raw material in industries that process food further. Debmandal & Mandal (2011), claim that the coconut is a tree of life with many advantages, all of which can be utilized in different facets of people's daily lives. This diversity of benefits makes coconut an important crop that has an annual production of around 2.89 tons (Badan Pusat Statistik, 2024). Coconut sugar is a processed product from one part of the coconut plant, namely coconut sap. Coconut sap has a sweet taste with sugar content at a concentration of 7.5%-20% (Yuliani *et al*.,2023). Kokap District is one of the districts in Kulon Progo Regency that cultivates coconut plants to produce coconut sugar. There are approximately 3,035.92 hectares of coconut plantations in Kokap District, of which 2,105.35 hectares are used for sap collection (Dinas Pertanian dan Pangan Kulon Progo, 2020). In this region, coconut

sugar is a major local product that generates income, but craftsmen's welfare is still comparately low. The coconut sugar business in Kapanewon Kokap is a family business that has been carried out from the previous generation and is the main source of income.

Research on the feasibility of coconut sugar industry has been carried out in several Indonesian regions, including Banyumas Regency (Faizah *et al*., 2020), Kulon Progo Regency (Satyarini *et al*., 2022), and Mempawah Regency (Ekawati *et al*., 2022). Each region has a different level of coconut sugar industry feasibility. This is due to different in the availability of raw materials and the cost structure used by craftsmen. Therefore, this study aims to analyze the deasibility of coconut sugar business in Kokap District, Kulon Progo Regency

METHOD

The research was conducted from July 2024 in Kokap District, Kulon Progo Regency. The population in this area is 2075 craftsmen from four cillages in Kokap District. Hargowilis and Hargorejo Villages were selected out of the foour villages because they have more craftsmen than the other two. A sample of 53 craftsmen from Hargowilis Village and 47 craftsmen from Hargowilis Village was obtained using proportional random sampling. Data collection is based on primary data with interviews using questionnaires and secondary data from relevant statistical data. Business feasibility analysis can be used as an important factor in decision-making in a company by using analysis of financial statements (Qehaja & Ismajli, 2018). The criteria used to assess feasibility are R/C ratio, capital productivity, and BEP.

The R/C ratio is based on the formula from Nurasiah et al. (2023) as follows:

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

Criteria: R/C > 1, meaning that coconut sugar business is feasible; and R/C ≤ 1, meaning that coconut sugar business is not feasible According to Suratiyah (2015), the formula for calculating capital productivity is as follows:

$$\pi/C\ Ratio = \frac{\pi}{TC} \times 100\%$$

Criteria: If π/C is greater than the current interest rate (6%), the coconut sugar business is feasible; if π/C is less than the current interest rate (6%), the business is not. The following formula can be used to systematically calculate BEP in three different ways: production BEP, revenue BEP, and price BEP (Suratiyah, 2015):

$$BEP\ Produksi = \frac{FC}{P - AVC}$$

$$BEP\ Penerimaan = \frac{FC}{1 - \frac{VC}{R}}$$

$$BEP\ Harga = \frac{TC}{Y}$$

RESULTS AND DISCUSSION

Total Costs Of Coconut Sugar Business

The total costs of the coconut sugar business include explicit costs and implicit costs. Explicit costs are costs incurred by craftsmen in real terms, including depreciation of equipment, tree depreciation, PBB, firewood, mangosteen sap, limestone, transportation, and packaging. For depreciation of equipment such as pot, tapper knife, bucket, mold, furnace and bumbung or sap collecting bottle, etc. Implicit costs include the family's labor expenses and equity, specifically its self-owned raw materials. The total costs of the coconut sugar business is detailed in Table 1.

Table 1. Average Of Monthly Total Costs of Coconut Sugar Craftsmen In Kokap District

Description	Total (Rp)
Fixed costs	
Depreciation	17.497
Tree depreciation	6.992
PBB	8.830
Variable costs	
Firewood	450.347
Mangosteen sap	16.773

Description	Total (Rp)
Lime	10.327
Transportation	11.651
Packaging	5.230
Exsplisit costs	527.645
TKDK	1.226.411
Equity	801.078
Implislit costs	2.027.489
Total costs	2.555.134

Based on Table 1, the average total costs of a coconut sugar business is 2,555,134 IDR for a month. Implicit costs were the highest in a one-month period, accounting for 79%, and explicit costs accounted for 21% of total costs. Implicit costs include family labor costs and equity. This equityl is the raw material of sap from coconut trees planted by craftsmen. The largest exspenses in the explicit costs was a firewood. In one month, the average cost for purchasing firewood by craftsmen is 450,347 IDR. Craftsmen's consumption for processing coconut sap into coconut sugar is quite high. Nira or coconut sap is still traditionally cooked in a furnace to make coconut sugar. This furnace causes craftsmen to require a lot of firewood (Syska & Ropiudin, 2023).

Revenue, Income, and Profit Of Coconut Sugar Business

The average revenue of coconut sugar depends on the volume of production and the selling price of coconut sugar in the market. The average production of coconut sugar in Kokap District in one month is 138.4 kg. The selling price of coconut sugar depends on the price offered by collectors. According to Table 2, the average selling price of coconut sugar is 21,875 IDR kg^{-1}, which generates 3,026,695 IDR $month^{-1}$ in revenue.

Table 2. Average of Monthly Revenue, Income, Profit of Coconut Sugar Business In Kokap District

Description	Unit	Total (Rp)
Production	Kg	138,4
Price	IDR	21.875
Revenue	IDR	3.026.695
Income	IDR	2,449.050
Profit	IDR	471.561

Craftsmen's income is obtained from the difference between revenue and total costs incurred, and the results obtained are 2,449,050 IDR month^{-1} (Table 3). The income earned by craftsmen is greater than the Kulon Progo Regency Minimum Wage (UMK) of 2,351,239 IDR month^{-1} (Pemerintah Daerah Istimewa Yogyakarta, 2024). Meanwhile, the average profit earned by craftsmen is 471,561 IDR month^{-1}.

Feasibility of coconut sugar business in Kokap District, Kulon Progo Regency

The feasibility of the coconut sugar in Kokap District business was analyzed using the R/C ratio, capital productivity, and BEP indicators.

Table 3. Feasibility of coconut sugar business in Kokap District

Information	Unit	Total
R/C ratio		1.18
Capital productivity	%	18%
Break Even Point		
BEP production	Kg	1,82
BEP revenue	IDR	39.822
BEP price	IDR kg^{-1}	3.813

Business feasibility using R/C ratio, capital productivity, and BEP. Table 3 shows that the R/C ratio was 1.18, indicating that the business is feasible to develop. This is in line with other studies in Mempawah, Kulon Progo Regency, and Banyumas Regency (Ekawati et al., 2022; Satyarini et al., 2021; Faizah et al., 2020). Capital productivity by comparing profits and total costs. The result obtained on capital productivity is 18% greater than 6%, so the coconut sugar business in Kokap District is feasible to develop. The monthly BEP is 1.82 kg for production, 39.822 IDR month^{-1} for revenue, and 3.813 IDR kg^{-1} for price. Meanwhile, the coconut sugar produced was 138.4 kg, with a revenue of 3,026,695 IDR month^{-1} and a selling price of 21,875 IDR kg^{-1}. Therefore, compared to BEP, the Kokap District coconut sugar company has higher production volume, revenue, and selling price.

CONCLUSION

The coconut sugar business in Kokap District, Kulon Progo Regency is economically feasible to develop (R/C ratio 1.18 > 1 and capital productivity > 6%). Production BEP was 1.82 kg, which was less than production volume (138.4 kg); revenue BEP was 39,822 IDR month-1, which was less than revenue (3,026,695 IDR month-1); and price BEP was 3,813 IDR kg-1, which was less than price (21,875 IDR kg-1). This study recommended for craftsmen produce coconut sugar was more than 138.4 kg of sugar. Based on result, all of coconut craftsmens will expand their business and continue to produce coconut sugar continuously.

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