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FACTORS AFFECTING INCOME AND DEVELOPMENT STRATEGIES OF THE ORGANIC COCONUT SUGAR AGROINDUSTRY IN MEMBERS OF THE CENTRAL AGRO LESTARI KUB OF BOJONGSARI DISTRICT, PURBALINGGA REGENCY, INDONESIA

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ABSTRACT
Coconut sugar plays an important role in the food composition of the people of Purbalingga Regency, both for household needs and as raw material for the food industry. The coconut sugar agro-industry is the main source of income in Bojongsari Sub-district, so it is necessary to conduct a systematic analysis and formulate a development strategy. This study aims to identify the income factors of organic coconut sugar farmers in Purbalingga Regency and formulate income improvement strategies. The research sample involved 80 farmers using simple random sampling technique. Analysis was conducted through description, path analysis, and SWOT. The results of path analysis on total labor costs, number of trees, and the quantity of nira have a positive and significant effect on production levels. The production variable itself has a positive and significant effect with income. In contrast, capital and total labor costs are negatively and significantly related to income. The variable number of nira was positively and significantly related to income. The recommended SO strategy includes utilizing strengths such as human resources, marketing networks, and government support, as well as opportunities through product diversification, market research, international distribution networks, and promotion of industry exhibitions. The integration of the two analyses shows the importance of modifying crop varieties to increase yield and quality, modernizing facilities to increase capacity and efficiency, and developing human resources to improve and expand marketing networks. These efforts are expected to increase community income and the national economy.

KEY WORDS
Coconut sugar, Purbalingga regency, income factors, Path analysis, SWOT analysis.

The agricukturan sector plays a key role in national economic development, with growth of 1.84% (yoy) in 2021, contributing 13.28% to the national economy (Izza & Purnomo, 2024). The positive trend continued in 2022 with a growth of 1,37% (yoy) and contribution of 12,98%. Farmers' welfare is also maintained through the achievement of a National Farmer Exchange Rate (NTP) of 107,33 for January-December 2022, with It 120,67 and Ib 112,43 (Akbar et al., 2019). The plantation subsector, which is an important part of agriculture, made the highest contribution to Indonesia's Gross Domestic Product (GDP) in 2021 (Pujiyanto et al., 2022). Several plantation commodities such as coconut, oil palm, rubber, coffee and tea contribute to the economy. Coconut development in Central Java especially in Purbalingga which for organic coconut sugar, show stability in its area (Putri & Budiningsih, 2021). Purbalingga has the potential to develop a sustainable coconut sugar agro-industry due to the availability of raw materials and favorable agroecosystem condition. This expected to improve farmers' welfare and the regional economy.

Bumisari Village in Purbalingga Regency dominates organic coconut sugar production. KUB Central Agro Lestari which was established in 2017 plays an important role in processing organic coconut harvests. Despite organic certification, farmers still face low income which is influenced by various production factors, internal environment, and external (Fitriwati et al., 2021). Meanwhile, factors that potentially affect the low income of farmers are the level of production, business capital, labor costs, the number of coconut trees, and the quantity of nira produced by coconut trees (Aryawati & Sri Budhi, 2018).

Further in-depth analysis is needed to identify the most dominant factors affecting the low income of organic coconut sugar farmers (Utomo & Pangeran, 2020). Strategic plans for agro-industry development need to consider all these aspects in order to achieve optimal and sustainable income increases. The focus and objectives of this study, it is hoped, will form a more accurate picture of the factors affecting the income of organic coconut sugar farmers and formulate appropriate strategies to increase income in a sustainable manner (Tolinggi et al., 2023). Increasing income involves not only the production aspect, but also considering the environmental and economic factors that affect the organic coconut sugar industry as a whole (Ojo & Baiyegunhi, 2020). Thus, the development of coconut agro-industry can have a positive impact on farmers, KUBs, and local communities, create new jobs, and increase overall regional income (Irala et al., 2020).

Research on the relationship between factors and strategies has been conducted by Nanda (2019) concluded that the amount of production, capital, selling price has a real effect on coconut sugar income in Rejoagung Village, Srono District, Banyuwangi Regency. In addition, research on SWOT Analysis has been conducted by Dharmawan et al., (2023) stated that the IFE value was 2.28 and the EFE value was 3.06 which indicated that the cooperative's position was in quadrant II of the IE matrix. Based on the SWOT analysis of organic coconut sugar of Nira Perwira Cooperative, the powder development strategy should include more promotional activities, more farmer loyalty, more contracts with third parties, more marketing networks, more competent members to run marketing, and more internal reorganization.

By providing in-depth insights, this research can serve as a valuable guide to improving the productivity and competitiveness of the organic coconut sugar sector. Farmers and collective business groups can use the findings of this study as a basis for strategic decisions in designing and implementing effective development strategies. Moreover, the information generated also has great potential to support the formulation of more targeted local government policies, thereby creating an enabling environment for agro-industry growth and sustainability. In addition, this research made a real contribution to local community empowerment, helping members of the Central Agro Lestari KUB to identify positive potentials and barriers to engaging in organic coconut sugar agro-industry activities.

METHODS OF RESEARCH

This research used qualitative and quantitative data obtained through literature study, interviews, participatory observation, documentation, and questionnaires. The research location is the Central Agro Lestari Village Unit Cooperative located in Bumisari Village, Bojongsari District, Purbalingga Regency, Central Java. This area was taken using purposive sampling technique because the area is the center of organic coconut sugar production and has been incorporated in a Joint Business Group (KUB) which has a business license from the Purbalingga Regency Government (Campbell et al., 2020). The research implementation time is planned from October to November 2023 in order to collect and analyze the required data.

The method used is the survey method, where a questionnaire is used as a research tool. The population in this study was all members of the Central Agro Lestari Joint Business Group who were organic coconut sugar crafters. The total population was 400 crafters, and the number of samples taken was 80 crafters determined by the Simple Random Sampling method (Berndt, 2020).

The data will be analyzed comprehensively to gain a deeper understanding of the factors that influence income. These factors will then be identified in a causal relationship using path analysis (Rahajuni et al., 2021). This path analysis aims to determine the causal relationship between variables, such as the relationship between production volume and income, the relationship between production costs and income, and the relationship between product quality, market absorption and income. By knowing the causal relationship between these variables, it is expected to provide a clearer picture of the dominant factors that affect the income of organic coconut sugar craftsmen. This information can later be used as a basis

for formulating targeted income generation strategies. Data analysis will be completed by identifying internal and external factors on income through SWOT analysis (Lestari & Marliyah, 2023). SWOT analysis aims to identify the strengths, weaknesses, opportunities and threats of the organic coconut sugar agro-industry. The results of both analyses are expected to support the formulation of integrated business development strategies to increase competitiveness and farmers' income. Thus, it is expected to provide benefits for the progress of the organic coconut sugar agro-industry as a whole.

RESULTS AND DISCUSSION

The results of the descriptive analysis present the variables observed in this study such as age, latest education, farming experience, and number of family dependents of KUB Central Agro Lestari members in Bojongsari District, Probolinggo Regency.

Table 1 – Descriptive Analysis

Variable	N	Range	Min	Max	Mean	Std. Deviation	Variance
Age	80	47	23	70	42,84	9,824	96,518
Business Experience	80	50	0,5	50	19,27	10,045	100,892
Number of Family Dependents	80	7	1	8	4,00	1,253	1,570

Source: Analysis of data primary, 2022.

Based on the results of the descriptive analysis conducted on the sample of organic coconut sugar farmers, several important conclusions can be drawn. First, in terms of age, it was found that the age of organic coconut sugar farmers in this sample has a fairly wide range, ranging from 23 to 70 years. The average age of organic coconut sugar farmers in the sample is 42.84 years, indicating that the majority of farmers are at productive age (Herzog et al., 1989). In addition, the relatively small standard deviation of 9.74 indicates that the age variation among organic coconut sugar farmers in this sample is not significant, meaning that the age variation in the sample is within the average age distribution.

The variable of the number of family members of organic coconut sugar farmers was also the focus of the analysis. From a sample of 80 farmers, it was found that the number of family members ranged from 1 to 8 people. The average number of family members of palm sugar farmers in this sample is 3.96 people. The standard deviation of 1.253 shows a significant variation in the number of family members of organic coconut sugar farmers in this sample. This indicates that the variation in the number of family dependents has a large variation or the distribution of the number of family dependents is greater than the average number of family dependents in the sample (Hendraini & Soedarto, 2021).

Finally, the business experience of organic coconut sugar farmers is also an important aspect in this analysis. Farmers' business experience ranges from 0.5 years to 50 years, with an average business experience of 19.27 years. The standard deviation of 10.045 indicates considerable variation in the business experience of organic coconut sugar farmers in this sample. This suggests that farmers with longer experience tend to be more skilled and productive in the organic coconut sugar production process. The knowledge and skills possessed will positively affect the increase in yield/production. This is accordance with Omar & Fatah, (2021) that long work experience is a technical factor determining productivity.

Table 2 – Normality Analysis

Variable	Min	Max	Skew	C.r.	Kurtosis	C.r.
Capital	0	62250	0,469	1,713	2,193	4,003
Labor	66000	110000	-0,365	-1,332	0,344	0,628
Quantity of Nira	24	128	0,385	1,406	-0,555	-1,013
Numbre of Trees	15	42	0,403	1,471	-0,425	-0,777
Production	7	16	0,582	2,127	-0,329	-0,601
Income	17204’5	128818	0,815	2,978	-0,081	-0,148
Multivariate					2,095	0,956

Multivariate normality test is conducted to determine whether simultaneously (multivariate) all CR variables come from a normally distributed overall probability. Based on the results of the multivariate normality test on the CR variable data, the score value is 0.956. The decision-making criteria for the multivariate normality test are if the CR statistical value is smaller than the critical value at the 5% significance level, namely the critical value for the overdraft score of 1.96 and kurtosis of 2.58, then it can be said that the data comes from a normal distribution (Demir, 2022). Since the multivariate overdraft and kurtosis scores are smaller than the critical values, jointly all CR variables are from a population with an overall probability of being normally distributed. Therefore, the assumption of multivariate normality is met and the data can be used for further parametric multivariate techniques.

Table 3 – Correlation Test

Variable			Estimate
Number of trees	↔	Quantityof nira	0,311
Number of trees	↔	Labor	0,471
Labor	↔	Modal	0,184
Quantity of nira	↔	Labor	0,255
Quantity of nira	↔	Modal	0,013
Number of trees	↔	Modal	0,432

The correlation test between variables is carried out to determine the linear relationship between the independent variables in the path analysis model. Based on the estimation results using standardization, a positive correlation relationship between variables was obtained. The relationship between the number of trees and the amount of nira has an estimate of 31.1%. The more the number of trees planted will be followed by an increase in the amount of nira produced. Furthermore, the strongest relationship between Number of Trees and Labor with an estimated value of 47.1%. This indicates that an increase in available labor will have a very positive effect on increasing the number of coconut trees cultivated. The weakest relationship is between labor and capital with an estimated value of 18.4%. However, the greater the available capital will support an increase in labor. The relationship between Nira and Labor is 25.5%, indicating a moderate positive relationship between the two factors. The weakest relationship was between Quantity of nira and Capital, at only 1.3%. The strong relationship between Number of Trees and Capital is 43.2%, indicating that the greater the available capital will support an increase in the number of coconut trees planted. In addition to testing the correlation between variables, it is also necessary to check for multicollinearity problems.

Multicollinearity occurs if there is a high correlation between independent variables. Based on the estimation results above, the highest correlation occurs between capital and the number of trees, which is 0.485. However, the correlation value is still below 0.8 so there is no significant multicollinearity problem (Keith, 2019).

Table 4 – R Test Squared

Variable	Estimate
Production	0,680
Income	0,872

The coefficient of determination (R square) test is conducted to determine how much the percentage of variation in the dependent variable can be explained by the independent variables in the model. Based on the estimation results presented, the R square value for the production variable is 0.680. This means that the model can explain 68% of the variation in palm sugar production that can be explained by the variables of capital, labor, number of trees, and amount of nira. While the R square value for the income variable is 0.872. This means that the variables of capital, labor, number of trees, amount of nira, and production can explain 87.2% of the variation in net income per day of farmers. Thus, it can be said that the variables of capital, labor, number of trees, amount of nira, and production together

significantly affect the production and income of farmers. The high coefficient of determination in both models indicates the strong explanatory power of the independent variables on the dependent variable. Therefore, the models have good predictive ability.

Table 5 – T Test

Variable			Estimate	S.E.	C.R.	P	Label
Production	←	Labor	0,000	0,000	3,368	***	par_7
Production	←	Number of trees	0,174	0,025	7,048	***	par_8
Production	←	Quantity of nira	0,026	0,006	4,471	***	par_9
Income	←	Production	13539,882	774,259	17,488	***	par_10
Income	←	Modal	-1,024	0,127	-8,056	***	par_11
Income	←	Labor	-0,713	0,147	-4,855	***	par_12
Income	←	Quantity of nira	125,971	54,845	2,297	0,022	par_13

The results of the significance test on path analysis show that the effect of labor, number of trees, and amount of nira on production is very statistically significant with the p-value of each variable much smaller than 0.001. This is theoretically appropriate where the production process requires a lot of labor and raw materials are trees and nira.

The effect of capital and labor also proved highly significant on income with a p-value of 0.000, indicating the importance of investment and human resources to increase income. Although the effect of nira amount on income has a p-value of 0.022 slightly below 0.05, this value is still acceptable. The production variable has a dominant influence on income with a p-value of 0.000, indicating that the higher the production, the greater the income generated. Overall, the results of the path analysis show that the relationship between all research variables is statistically very strong. This strengthens the validity of the proposed conceptual model.

Table 6 – Path Estimation

Variable			Estimate
Production	←	Labor	0,245
Production	←	Number of trees	0,522
Production	←	Quantity of nira	0,302
Income	←	Production	1,007
Income	←	Modal	-0,341
Income	←	Labor	-0,238
Income	←	Quantity of nira	0,110

Based on the results of the coefficient estimation analysis using the standardization score on the path model, several significant relationships between the research variables were identified. Based on the results of the coefficient estimation analysis, a significant relationship between the observed variables can be seen. It was found that an increase in labor had a positive impact of 24.5% on production, while an increase in the number of trees and the quantity of nira contributed 52.2% and 30.2% to production, respectively. On the other hand, an increase in capital showed a significant negative impact, with a 34.1% decrease in production. The labor and nira variables also had a negative impact on income, with a decrease of 23.8% and a positive contribution of 11%, respectively. The estimated coefficients of this path analysis provide a deeper understanding of the extent to which the relationship between these variables affects production and income. For example, an increase in Labor, Number of trees, and Quantity of nira contribute positively to Production, while Capital and Labor have a negative impact on Income. Production also has a strong influence on Income, with an estimated coefficient of 107%. This means that a one-unit increase in the Production variable will result in a 107% increase in revenue. This can be the basis for a more effective management strategy in improving the performance of the agribusiness.

The results of the analysis of the direct effect of each production variable, the number of trees, nira production, labor, and capital have a significant role in the context of organic

coconut sugar production. The production variable measures the amount of organic coconut sugar production per one-time production, with a direct effect on income of 100.7%. In contrast, the number of trees variable contributes 52.2% to production without affecting income. The nira production variable affects production by 30.2%, while also contributing a positive 11% to income. A one-unit increase in labor increases production by 24.5%, but has a negative impact on income of -23.8%. Meanwhile, the capital variable has no direct relationship with production, but a one-unit increase in capital leads to a decrease in income by -34.1%. Thus, production-variables and other factors interact with each other in influencing production output and income in the context of organic coconut sugar production.
The results of the analysis of the indirect effects of each variable show a significant impact on income in the context of organic coconut sugar production. First, the number of trees variable has an indirect effect on income of 52.6%, with an estimated value of 0.526. This means that an increase in the number of trees will increase income through organic coconut sugar production by 0.526. Second, the nira production variable has a direct effect on income of 30.4%, with an estimated value of 0.304. In other words, a one-unit increase in nira production will contribute to an increase in income of 0.304. Finally, in the indirect effect analysis, the labor variable has a direct impact on income of 24.7%, with an estimated value of 0.262. If there is a one-unit increase in labor, income can increase indirectly through the organic coconut sugar production variable by 0.247. Thus, the results of this analysis indicate that these variables have an important role in understanding the relationship between production and income in the organic coconut sugar industry.

Table 7 – Effect Analysis

Production Variables	Direct Effect		Indirect Effect	Total Effect	
	Total Production of Organic Coconut Sugar	Income	Income	Total Production of Organic Coconut Sugar	Income
Capital	0	-0,341	0	0	-0,341
Labor	0,245	-0,238	0,245	0,245	0,008
Nira Production	0,302	0,11	0,304	0,302	0,415
Number of trees	0,522	0	0,526	0,522	0,526
Total Coconut Sugar Production Organic	0	1,007	0	0	1,007

Source: Analysis of data primary, 2022.

The results of the total effect analysis of each variable highlighted the significant role of these factors in the context of organic coconut sugar production and income. First, the variable number of coconut trees has a positive impact on farmers' production and income. An increase of one coconut tree can increase coconut sugar production by 52.2% and farmers' income by 52.6%. Second, the variable of nira production contributes positively to organic coconut sugar production and income. An increase of one liter of nira production can increase production by 30.2% and income by 41.5%. Third, the labor variable has a positive effect on coconut sugar production, although the impact on income is relatively small. An increase of one worker can increase production by 24.5% and income by 8%. Fourth, the capital variable does not affect production, but an increase in capital can reduce income by 34.1%. Therefore, optimizing capital allocation is very important to support business sustainability. Fifth, coconut sugar production has a significant positive impact on income, where an increase in production by 100.7% will increase farmers' income proportionally. Overall, the results of the analysis show that the factors interact with each other and have important implications in optimizing production and income in the organic coconut sugar industry.

The production model equation was developed as a liner function of the four independent variables. To avoid heteroscedasticity problems, path analysis wa sonducted using the standardized score of each variable. By using standart scores, the magnitudes of the variables have been standardized so that they have a mean of zero and a variance of one. This makes the relative influence of each variable can be seen through the coefficient

estimate.

In this study, path analysis was carried out by estimating the production model equation of organic coconut sugar business. The production model is built based on the theory that the level of production is influenced by several productions input factors. The input factors tested include total labor costs (X2), number of trees (X3), and quantity of nira (X4).

The production model equation was developed as a function of the four independent variables. The purpose of this analysis is to determine the extent of the influence of each production input factor on production levels. The estimated coefficients of each variable are expected to provide an overview of the real contribution of each factor to production. The equation model does not include an error component so that the equation becomes as follows:

$$\hat{Y}_{production} = \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$
$$\hat{Y}_{production} = 0{,}245 X_2 + 0{,}522 X_3 + 0{,}302 X_4$$

Where: X_2 = Variable Total Labor Cost; X_3 = Variable Numbre of Trees; X_4 = Variable Total Nira Production.

The estimation results of the production equation show that several factors have a real influence on the level of coconut sugar production. The estimated coefficient of labor cost per day is 0.245, indicating the importance of providing adequate labor to support the productivity and operational efficiency of coconut sugar production. The variable number of trees on production per day has a dominant influence with a coefficient value of 0.522, illustrating its important role in maximizing yields. While the coefficient of total nira production of 0.302 indicates that the availability of adequate raw materials will have a significant impact on increasing production in the coconut sugar agro-industry. Overall, the results of the analysis reveal the importance of factors such as labor, number of coconut trees, and quantity of nira to support the performance and increased production of the coconut sugar industry in the future.

This research aims to estimate the equation model of income per day of coconut sugar craftsmen using path analysis. Based on economic theory, income is influenced by several input factors such as capital, labor, raw materials and production levels. Therefore, the variables tested for their influence on income are capital (X1), total labor costs (X2), the quantity of nira (X4) and the level of production (Z).

An income model equation was constructed to determine how much each of these factors contributed. The coefficient estimation is expected to illustrate the mechanism of influence of each variable quantitatively. Thus, the results of this analysis are expected to be able to explain the pattern of relationships between variables in the model and predict the key factors that affect the income of oragnic coconut sugar craftsmen. The following is the income model equation:

$$\hat{Y}_{production} = \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$
$$\hat{Y}_{income} = -0{,}341 X_1 + 0{,}526 X_2 + 0{,}008 X_3 + 0{,}415 X_4 + 1{,}007 X_5$$

Where: X1 = Business Capital Variable, X2 = Variable Number of Trees, X3 = Variable Total Labor Cost, X4 = Variable Total Production of Nira Liter, X5 = Organic Coconut Sugar Production Variable.

The total nira production variable contributed 41.5% to the income through organic coconut sugar production from the volume of sugar produced. This shows the importance of nira as the main raw material for the coconut sugar industry. To increase profits, efforts need to be made to increase nira productivity, such as superior coconut cultivation and reliable harvest management. Labor costs contribute only 8% through coconut sugar production to revenue, indicating the need for more efficient human resource management. On the other hand, the amount of labor required by the business also needs to be evaluated. This is important to reduce production costs. The negative coefficient of -0.341 or -34.1% on the

capital to direct income variable identifies the need for targeted capital expenditure allocation in the pre-production and post-harvest phases. This is to maximize the benefits of such investments for increased production and profits. With a dominance of 100.7%, sugar production volume is the main factor affecting revenue. Therefore, increasing productivity through agronomic innovation and post-harvest technology is key to the success of the organic coconut sugar agro-industry business.

SWOT analysis is a useful tool for evaluating strengths, weaknesses, opportunities, and threats in the context of strategic planning. The first step of SWOT analysis is to analyze internal factors (IFAS) and external factors (EFAS) separately. This chapter will present the results of the IFAS and EFAS matrix analysis and explain what factors are owned and faced by the company.

Internal Factor Evaluation (IFE) analysis is an important step in evaluating the company's internal strategic factors quantitatively. The previous chapter has explained the stages of determining the weight and rank of each internal strength and weakness factor. The stages of analysis include allocating weights to each factor, ranking them based on the assessment, multiplying the weights with the rankings, summing the multiplication results, and determining the final IFE score. These results will help quantitatively assess the current strengths and weaknesses. The following is the score of the internal strategy analysis.

Table 8 – Internal Strategy Factor Analysis Matrix

Matrix IFAS			
Strenghts			
Variable	Weight	Rating	Score
Availability of nira raw materials is quite abundant	0,131	3,9	0,52
Unique products in the form of crystal/powdered sugar and boxed printed sugar	0,088	3,1	0,27
Continuous sugar	0,108	3,8	0,41
Environmentally friendly products because they are organic/already have organic serification.	0,108	3,7	0,40
Availability of labor, because it has bee a culture for generations	0,103	3,0	0,31
Excellence in human resources the management tim at KUB is relatively good	0,125	3,8	0,48
Products are in demand by market, both local and international markets	0,110	3,1	0,34
Adeqate infrastructure (roads, electricity, etc)	0,104	3,0	0,32
Production position is close to the source of raw materials	0,122	3,6	0,44
Total	1,000		3,48
Weaknesses			
Variable	Weight	Rating	Score
Quality of coconut sugar products from members is inconsistent/fluctuating.	0,106	3,9	0,42
The numbers of penderes continues to decline/difficulty in generation.	0,097	3,0	0,29
Craftsmen's production sites are not yet GMP standard and waste energy.	0,099	3,0	0,30
Violation of organic farming code of ethics by craftmen	0,100	3,0	0,30
Dependence on weather / season / lowering the quality of nira	0,136	2,9	0,39
Organic land that is les productive / productivity decrases	0,103	3,0	0,31
Certification standards required by the global market are still needed	0,111	3,0	0,34
Still lack of capital, especially for procedurement of raw materials and crystal sugar production equipment	0,139	2,9	0,40
Export fulfillment is not done by KUB directly but through buyers	0,109	3,0	0,33
Total	1,000		3,07

Based on the IFAS matrix results, the total score for strength factors is 3.48, while for weakness a factor is 3.07. This indicates that Central Agro Lestari KUB has greater internal strengths than weaknesses, with a difference of 0.41 points. Broadly speaking, the KUB's main strengths are the availability of raw materials and the good quality of its human resources. Weaknesses that need to be addressed include fluctuations in product quality and limited working capital. Considering the results of this analysis, it is necessary to formulate strategies that strengthen KUB's strengths, such as increasing productivity and developing export markets. On the other hand, efforts are needed to overcome weaknesses, such as increasing production capacity and training members to maintain consistent quality.

External Factor Evaluation (EFE) analysis is an important step in evaluating the company's external strategic factors quantitatively. The previous chapter has explained the stages of determining the weight and rank of each external opportunity and threat factor. The stages of analysis include allocating weights to each factor, giving a rating based on the assessment, multiplying the weight with the rating, summing the multiplication results, to determine the final EFE score. These results will help quantitatively assess the opportunities and threats facing the company today. The EFAS results are presented in the following table:

Table 9 – Strategy Analysis Factor External Matrix

Matrix EFAS			
Opportunities			
Variable	Weight	Rating	Score
Markets prospects are available both domestically and abord	0,103	4,0	0,41
Health awareness by comsumers towards Go Organic	0,102	3,9	0,39
More product diversification	0,094	3,1	0,29
Coconut sugar products from KUB are favored by buyes	0,098	3,9	0,38
Featured Product “One Product One Village”	0,093	3,9	0,36
Development of science and technology in supporting coconut sugar agro-industry	0,094	3,7	0,34
Research support for processing technology and academics	0,094	3,9	0,37
Gevernment support through coaching and equipment assistance	0,115	3,9	0,45
Marketing network is getting wider	0,112	3,8	0,42
High added value from printed sugar to powdered sugar	0,096	3,9	0,38
Total	1,000		3,79
Threats			
Variable	Weight	Rating	Score
Demand for gigh export quality standarts (Gluten Free Sulfite Free)	0,194	2,87	0,56
Lack of training for craftsmen	0,130	2,98	0,39
Competitors that have higher quality certification	0,188	2,25	0,42
Competition of coconut sugar products with other sugar products (granulated sugar / refined sugar)	0,157	1,98	0,31
The existance of a black campaign that harms KUB from unscrupulous expoters	0,132	2,00	0,26
The absence of regulation governing organic farming to protect farmers’ business activities (Prbub) from Government	0,200	2,88	0,58
Total	1,000		2,51

Based on the results of the EFAS matrix, the total score for the opportunity factor is 3.79, while for the threat factor is 2.51. This indicates that the external opportunities faced by KUB are greater than the threats, with a difference of 1.28. Broadly speaking, the main opportunities come from good market demand and government support. Meanwhile, threats that must be watched out for include strict export quality standards and competition from other sugar products. Taking this into account, it is necessary to formulate strategies to take advantage of opportunities such as market expansion and improving product quality to meet export standards. Another effort is to increase product promotion and lobby for favorable regulations. Meanwhile, strategies to anticipate threats such as new product development and new market penetration are needed. Further analysis will be conducted to formulate appropriate strategy recommendations.

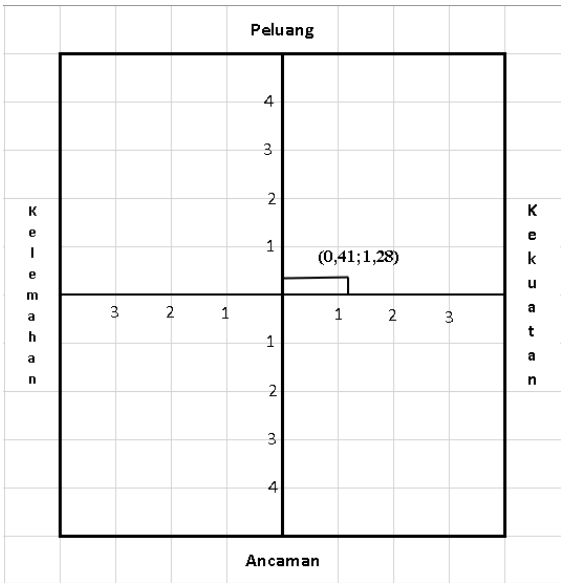

Figure 1 – SWOT Matrix

Based on the results of the IFAS and EFAS matrix analysis that has been carried out, the total score of internal factors is 3.48 for strengths and 3.07 for weaknesses. Meanwhile, the total score of external factors is 3.79 for opportunities and 2.51 for threats. Furthermore, these scores are plotted on the SWOT analysis diagram. On the X-axis, the difference between the strength and weakness scores is 0.41. While on the Y axis, the difference

between the scores of opportunities and threats is 1.28. With the coordinates (0.41; 1.28), the position of the Organic Coconut Sugar KUB in the SWOT diagram can be determined. The coordinates indicate that the KUB is in an aggressive position that has internal and external advantages. Further analysis will be seen in the following SWOT diagram according to this position.

Based on the theory of Puyt et al. (2020), there are four alternative strategies based on the company's position in the SWOT diagram, including:

- Quadrant I (aggressive position): SO (strength-opportunity) strategy, which is owned by KUB based on the results of the analysis;
- Quadrant II (conservative): ST (strength-threat) strategy;
- Quadrant III (defensive): WO (weakness-opportunity) strategy;
- Quadrant IV (liabil): WT strategy (weakness-threat).

Based on the results of the previous analysis, the Organic Coconut Sugar KUB is in quadrant I with coordinates (0.41; 1.28). This indicates that the KUB is in an aggressive position that has the advantage of internal strengths and external opportunities. Therefore, the appropriate strategy is an aggressive SO strategy, which utilizes strengths to maximize existing opportunities to support aggressive growth. This strategy is in line with Rangkuti's theory for companies in quadrant I.

IFAS (Internal Factor Analysis) / EFAS (External Factor Analysis)	• Ability of nira raw materials is abundant; • The product is unique in the form of crystal / powdered sugar and boxed printed sugar; • Continuous production; • Envirenmentally friendly products because the products are organic / alredy have organic certification; • Availability of labor, because it has been a culture for generations; • Human Resource ecellence the management team at the KUB is relatively good; • Product are in demand by the market, bot local and international markets; • Infrastructure is adequate (roads, electricity, etc); • Production position is close to the source of raw materials.
• Market prospects are available both domestically and abroad; • Health awarness by consumers towards GO Organic; • More and more product diversification; • Coconut sugar products from KUB are favored by buyers; • Featured product “Oe Product On Village”; • Development of science and technology in support of coconut sugar agro-industry; • Processing technology research support and academics; • Government support through coaching and equipment assistance; • Marketing network is getting wider; • High added value from printed sugar to powdered sugar.	*Strategy S-O* • Availability of nira raw materials is bundant; • Excellence in human resources the management team at the KUB is relatively good; • Production position is close to the source of raw materials; • Market prospecrs are available both domestically and abroad; • Government support through coaching and equipment assistance; • Marketing network is getting wider.

Figure 2 – SO Strategy Result

Based on the results of the SWOT analysis that has been carried out, alternative strategies that can be used for the development of the organic coconut sugar agro-industry are identified. In this case, we will focus on the strengths and opportunities (S-O) strategy, which involves using existing strengths to make the most of opportunities. First, with the availability of sufficiently abundant nira raw materials, the company can develop a product

diversification strategy. This means it can expand the range of products offered with different variants of coconut sugar, taking advantage of the abundant availability of raw materials. For example, in addition to standard coconut sugar, the company can produce organic coconut sugar with specific regional flavors. Secondly, the KUB's good human resource management team can be used to strengthen market development. A skilled management team can conduct in-depth market research, identify potential market segments, and develop effective marketing strategies. For example, it can expand its marketing reach to new markets, such as the export market, with the help of a competent management team. Third, with a production position close to the source of raw materials, the company can open a marketing network and export orientation. In this case, the company can establish partnerships with local and international distribution partners to increase access to a wider market. In addition, companies can focus on exports as a strategy to capitalize on the market prospects available both domestically and abroad. Fourth, government support through coaching and equipment assistance can be used to increase production capacity. Companies can utilize this support to develop better production infrastructure, improve operational efficiency, and increase overall production capacity. This will help the company meet the growing market demand. Fifth, with a more extensive marketing network, companies can increase promotion through exhibition activities. Participation in industry exhibitions or agricultural fairs can be an effective platform to introduce coconut sugar products to potential customers and business partners. In addition, companies can also utilize exhibitions as an opportunity to build relationships and establish cooperation with related industry players. Sixth, the importance of implementing product quality standards should not be overlooked. In the face of increasing competition, companies must ensure that their products meet high quality standards. This can be done through certification and strict supervision of the production process. By doing so, the company can build a reputation as a quality and reliable coconut sugar producer. Finally, it can optimize location-specific research activities. By understanding the characteristics of the region where production is located, companies can identify product innovations or modifications that can attract local or even international markets. For example, developing variants of tumbu sugar with regional flavors or utilizing technology that is suitable for local geographical conditions. By using this S-O strategy, palm sugar companies can utilize their strengths, such as the abundant availability of raw materials, superior human resource management, strategic production position, good market prospects, government support, and extensive marketing networks.

The Joint Business Group (KUB), Central Agro Lestari in Bojongsnari District, Purbalingga Regency, has great potential in the organic coconut sugar agro-industry. Supporting factors include the abundant availability of coconut nira and conducive agroclimatological conditions. Analysis using the IFAS and EFAS methods identified internal and external factors, helping to formulate development strategies. The production and income equation model showed that labor, number of trees, and quantity of nira had a significant impact on production and income. Increasing nira productivity and developing processed palm sugar products are proposed as strategies. SWOT analysis highlighted internal strengths, such as raw material availability and management experience, and external opportunities, such as strategic location and government support. A SO strategy (capitalizing on internal strengths and external opportunities) is recommended to improve business competitiveness and growth. This is in line with Lantarsih et al., (2023) This strategy combines opportunities and strengths to support aggressive business growth. The results of path analysis show that nira productivity, number of trees, labor costs, and sugar production have an effect on increasing income. In accordance with Rahajuni et al., (2021) that it is necessary to equalize the variable costs of production, the quantitu of production to increase the income of organic coconut sugar farmers. The integration of SWOT and pathway analysis emphasizes the importance of improving nira productivity, sugar production, and HR capacity for sustainable financial performance and competitiveness.

By proposing strategies such as plant variety modification, agronomic optimization, facility modernization, human resource capacity building, and marketing development, KUB can maximize the potential of internal resources and take external opportunities to improve

the performance of organic coconut sugar agribusiness in a sustainable manner The implementation of integrated development is expected to increase community income and the national economy.

CONCLUSION

The results of the analysis of 80 respondents, the percentage of organic coconut sugar farmers with primary education level is 91%, the age range is 23-70 years, the average age is 42.84 years, the number of family members is 1-8 people with an average of 4 people, and the business experience is 6 months - 50 years with an average of 19.27 years. There are educational gaps and variations in the age, number of family members, and business experience of farmers. Factors that significantly influence the production and income of organic coconut sugar agribusiness are the availability of labor (24.5%), the number of trees (52.2%), and the quantity of nira (30.2%). The variable number of trees (52.6%) and coconut sugar production (100.7%) contributed the most to income. The development strategy of organic coconut sugar agribusiness is recommended to utilize internal strengths such as the availability of nira raw materials, experienced human resources, strategic production locations, and extensive marketing networks to take advantage of market opportunities and government support.

Capacity building programs for farmers through training in cultivation techniques, mechanization, and business management are needed to increase productivity and income. Continuous training is also recommended to improve cultivation and marketing techniques. Modernization of sugar processing facilities, optimization of manpower, and natural resources, as well as cooperation with industry and strengthening partnerships with stakeholders, are considered strategic steps to improve production efficiency and marketing of organic coconut sugar products.

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