Potential analysis of palm sugar industry development in Lombo Village, Sidrap District

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Abstract. Palm sugar is one of the primary commodities in agribusiness sector, that have a huge potential to be developed into an industry. The palm sugar industry has an important role in employment, income distribution, and improving the welfare of local communities. The problem in this research is how to develop the potential of small palm sugar industry in Lombo Village, Sidrap Districts. The purpose of this study is to identify external and internal factors, 2. Formulate the palm sugar industry development strategy. The method used in this research is descriptive with a qualitative approach. The sampling method in this study used the accidental sampling method with a selected sample of 15 respondents. Data analysis was performed using SWOT matrix analysis. The conclusions obtained are based on matrix analysis of Internal Strategic Factors (IFAS) 2.9 and External Strategic Factors (EFAS) 2.4. This shows that the palm sugar industry in Lombo Village, Sidrap Districts has strengths that can be maintained or improved and have opportunities that can be developed. The development strategy that can be carried out is a strategy that supports aggressive growth. The advice given is to maintain the characteristic taste of the product and improve product quality by creating innovations in product packaging, diversifying product types so that they have high added value.

1. Introduction
Agricultural development is currently expected to increase productivity and efficiency in order to compete in domestic and global markets. Agricultural development targets aim to increase farmers' income and welfare through empowering farming communities. In achieving development goals, policies and strategies for agricultural development are carried out through development business systems. The existence of industry in rural areas is supposed to increase demand for agricultural commodities, because agroindustry plays a role in converting agricultural products into goods that are useful for the needs of the
community [1]. One of the agricultural products that can be used in the processing industry is sugar palm. Sugar palm plants have an important role and function of ecological, economic, social, and cultural, [2].

Sugar palm (Arenga Pinnata) is a plantation plant that has enormous potential to be developed and cultivated [3]. Sugar palm has long been cultivated by people in Indonesia, because it has a very large impact in improving the regional economy [4]. The main product of the palm plant is the sap from the tapping of male flowers which is used as palm sugar [5]. Palm sugar have a better nutritional quality than refined cane sugar [6]. The palm tree is a versatile tree whose all parts can be used for various purposes [7]. Palm sugar products are dark brown, might be used in many dishes such as candy, soft drinks, and canned products [8]. Other parts of the palm tree that can be utilized are sago palm, fibers, stalks of male flower bunches, fruit, leaves, midrib, roots and bark [9].

Palm plants start getting serious attention from various parties in the past two years to develop into an agribusiness commodity. Sugar palm trees can successfully produce about 60 kinds of derivative products and some of the potential economic value of exports. One of the superior products from the palm plant is brown sugar, ant sugar or crystal sugar. Sugar palm is useful as a source of energy and environmental conservation [10]. The development of palm sugar agribusiness must be carried out from upstream to downstream.

The economic value generated from the sugar plant is very large in the international market. This can increase the potential of the national economy through export. In addition to being consumed in the country, sugar products are also in demand of international markets, particularly palm sugar. Export destinations include Japan, the United States and European countries. Palm sugar made from Indonesia is accepted in foreign markets because it has a different content and aroma from other countries [11].

Judging from the benefits of sugar palm is consists of roots to leaves, all parts of the tree can be processed into raw materials for certain products that have economic value. Thus, it is time for this commodity to be managed properly and directed to community economic development based on sugar palm plants. The potential of palm sugar in Indonesia reaches 60,482 ha with palm sugar production of 20,376 tons/year, specifically, the potential of palm sugar in South Sulawesi is 7,293 hectares with sugar production of 3,174 tons/year [12]. Kab Sidrap has high economic potential with an area of 189,808.69 km². Administratively, Sidenreng Rappang Regency consists of 11 sub-districts, 106 villages [13].

Lombo Village is located in Pitu Rias District, which is one of the sub-districts in Sidrap Regency. Most of the residents of Lombo Village have long been producing palm sugar. the number of craftsmen as many as 43 people spread over four hamlets. The potential for sugar palm in the village is estimated at 700 productive trees [14].

The explanation above shows that Lombok Village, Sidrap Regency has the opportunity to develop its natural resources. However, currently the processing of palm sugar products is still done traditionally, in terms of cultivation, processing/making of palm sugar, packaging and marketing of palm sugar products are still carried out in a simple manner using makeshift equipment. Another problem in this area is the low quality and quantity of products, thus requiring a more in-depth analysis in increasing the potential for the development of the palm sugar industry.

Based on the description above, this study aims to examine the strategy of developing the palm sugar industry in Lombo Village, Sidrap Regency. This study is expected to be a useful reference for the government of Sidrap Regency in making policies and strategies to develop and improve small palm sugar industries. Therefore, this research aims to 1) analyze the internal and external factors include strengths, weaknesses, opportunities, and threats, from the development of palm sugar agribusiness, 2) analyze the internal and external factors which include strengths, weaknesses, opportunities, and threats, from the development of palm sugar agribusiness, 3) decide strategic priorities based on existing potential, capabilities, and obstacles.
2. Methodology
This research was conducted in Lombo Village, Sidrap Regency. The research was conducted in June 2021. The sampling method was done by purposive sampling with a specific purpose, where 45 palm sugar craftsmen were the population. The number of samples taken in this study were as many as 15 respondents from the total population. The types of data used in this research are secondary data and primary data. The data collection technique used is direct observation in Lombo Village, Sidrap Regency with interviews, documentation, and giving questionnaires. Data analysis was performed by descriptive statistical analysis and SWOT analysis.

3. Result and discussion
From the results of interviews with palm sugar craftsmen and facilitators of palm sugar production development, there are several production factors that affect the amount of palm sugar production. The factors that influence the development of palm sugar production identified by the matrix of internal and external strategies are:

3.1. Description of internal strategic factors (IFAS)
Evaluation of internal factors is carried out by identifying the following strengths and weaknesses:

1. Palm sugar craftsman in the Lombo Village area has expertise in processing and making palm sugar products from generation to generation.
2. In terms of human resources (HR), these palm sugar craftsmen do not have employees to work with but are done by family members themselves.
3. The education level of the craftsmen is also mostly low, namely high school graduates and below. This causes some craftsmen to not understand marketing techniques.
4. The raw materials for making palm sugar are easy to get and the whole process of making palm sugar is done manually and still uses simple equipment.
5. Palm tree gardens in Lombo Village are owned by palm sugar craftsmen and some use government land, so that the utilization of raw materials can be maximized.
6. The amount of palm sugar produced every day is 3 to 5 kilograms. But in reality, the production results obtained are fluctuating (up and down), sometimes it can be more and even less, this is caused by a lot or at least the palm sap obtained from the tapping process.
7. Palm sugar products have unique and distinctive characteristics from other sugar products. Palm sugar products generally maroon, have a sweet taste that is pure, and has benefits in health and culinary.
8. In general, the marketing of palm sugar products is done by collectors. Palm sugar craftsman never do promotions and rarely sells its products directly to the traditional market.
9. At the time of starting or establishing the palm sugar industry, the craftsmen did not use a large enough capital, because the raw material used was their own palm tree with simple equipment.
10. Currently, the palm sugar industry is developing with the existence of farmer groups, although there are still many craftsmen or farmers who survive in the traditional way.

3.2. Description of external strategic factors (EFAS)
External factors in the palm sugar manufacturing industry in Lombo Village, Sidrap Regency are:

1. The role of the government in the activities of the palm sugar industry is very much needed. The government's role aims to make craftsmen more passionate about developing their industrial activities and can make palm sugar products into superior products.
2. The potential for the development of the palm sugar industry will be further developed with assistance from the private sector.
3. By utilizing information technology such as the internet and social media, it is hoped that palm sugar craftsmen can develop palm sugar business opportunities.
4. The low interest of the next generation, as well as the least tendency of young workers to enter the palm sugar manufacturing industry.
5. The existence of mixed sugar products, namely palm sugar products mixed using granulated sugar and coconut sugar.
6. The amount of palm sap and the quality of palm sugar products are strongly influenced by the weather or the current season.
7. The support and role of the government is very much needed to realize the marketing development of palm sugar products, this can be realized by holding a collaboration between the Culture and Tourism Office and the Sidrap Regency Cooperative Industry Office and UMKM

3.3. SWOT analysis assessment
Development strategy formulation process palm sugar industry in the village of Lombo is performed using a quantitative approach SWOT Analysis. All strategic factors, both internal (strengths and weaknesses) and external (opportunities and threats) are made in the questionnaire. The calculation results are shown in the following table:

3.3.1. Internal strategy factor matrix (IFAS)

| STRENGTH                              | Weight | Rating | Scores |
|---------------------------------------|--------|--------|--------|
| S1 Excellent Products                 | 0.06   | 3.5    | 0.19   |
| S2 Expertise and skills mature        | 0.06   | 3.4    | 0.22   |
| S3 Hereditary skills                  | 0.06   | 3.4    | 0.22   |
| S4 Human Resources                    | 0.07   | 3.6    | 0.23   |
| S5 It is own raw materials            | 0.06   | 3.5    | 0.23   |
| S6 Raw materials readily available    | 0.07   | 3.5    | 0.23   |
| S7 Unique and distinctive product     | 0.07   | 3.5    | 0.24   |
| S8 Product Benefits                   | 0.07   | 3.5    | 0.24   |
| S9 Easy product sales                 | 0.06   | 3.3    | 0.21   |
| S10 R&D                               | 0.06   | 3.5    | 0.19   |
| S11 Family relations with middlemen   | 0.06   | 3.3    | 0.19   |

| Total                                 |        |        | 2.40   |

| WEAKNESS                              | Weight | Rating | Scores |
|---------------------------------------|--------|--------|--------|
| W1 No Capital                         | 0.04   | 1.7    | 0.09   |
| W2 Simple Equipment                   | 0.03   | 1.5    | 0.05   |
| W3 Manual Process                     | 0.03   | 1.5    | 0.05   |
| W4 Low production capacity and unstable production | 0.03   | 1.5    | 0.05   |
| W5 No Promotion                       | 0.04   | 2.5    | 0.09   |
| W6 Narrow marketing scope             | 0.03   | 1.7    | 0.06   |
| W7 Lack of expertise in business management | 0.03   | 1.3    | 0.04   |
| W8 Farmers don't care about the future| 0.03   | 1.8    | 0.07   |
| W9 Low education                      | 0.03   | 1.6    | 0.05   |

| Total                                 |        |        | 0.52   |
| Total Score of Strength and Weakness  |        |        | 2.92   |

Sources: Primary Data, 2021.
In the table above, the total value obtained from the calculation of the IFAS matrix is equal to (2.92). This position shows that, internally, the palm sugar industry in Lombo Village is currently quite good at taking advantage of the strengths and trying to overcome the existing weaknesses. The main strength factor that must be maintained is that palm sugar products are unique and distinctive compared to other products (0.24). Weakness factors that affect the development of small palm sugar industry in Lombo Village are the lack of business capital and the lack of promotion of palm sugar sales (0.09), and the last weakness factor is the lack of expertise of business actors in business management (0.04).

3.3.2. External strategy factor matrix (EFAS). Based on the assessment that has been made by the informant on the strategic factors of the external environment of the palm sugar industry, the table of calculation results is shown and explained as follows:

Table 2. External strategy factor

| OPPORTUNITY | Weight | Rating | Score |
|-------------|--------|--------|-------|
| O1          | 0.11   | 3.6    | 0.39  |
| O2          | 0.11   | 3.3    | 0.33  |
| O3          | 0.09   | 3.5    | 0.29  |
| O4          | 0.10   | 3.5    | 0.37  |
| O5          | 0.11   | 3.5    | 0.39  |
| Total       |        |        | 1.79  |

| THREATS      | Weight | Rating | Score |
|--------------|--------|--------|-------|
| T1           | 0.09   | 1.67   | 0.10  |
| T2           | 0.06   | 1.47   | 0.09  |
| T3           | 0.07   | 1.33   | 0.09  |
| T4           | 0.07   | 1.13   | 0.08  |
| T5           | 0.07   | 1.47   | 0.09  |
| T6           | 0.07   | 1.47   | 0.09  |
| T7           | 0.05   | 1.4    | 0.07  |
| T8           | 0.05   | 1.33   | 0.06  |
| Total        |        |        | 0.68  |

Total Score of Opportunity and Threats 2.47

Sources: Primary Data, 2021

Table 2 shows the total number of values obtained from the EFAS matrix is equal to (2.47). This position shows that externally, the small palm sugar industry in Lombo Village is currently suitable at utilizing the strength factor and trying to overcome the existing threats. From this assessment, there are opportunity factors in small palm sugar industrial activities in Lombo Village that can be utilized by farmers, including the support and role of the government and private sectors (0.39). The last factor is the existence of an adequate telecommunications/internet network (0.29).

Threat factors to the palm sugar industry in Lombo Village that must be anticipated and avoided are climate or weather conditions. Threat factors to small palm sugar industry in Lombo Village in the realization of the industrial development strategy are bad weather conditions (0.10) and the last threat is that farmers usually provide a mixture of other ingredients in the manufacture of palm sugar (0.06).
Based on the results of the calculations in the table above, it can be seen that the current relative position of the palm sugar industry shows a very favorable situation. Where the palm sugar industry in Lombo Village has a strength that can be maintained or increased. The palm sugar industry in this area also has opportunities that can be utilized properly and maximally. Hence, the development strategy that should be used by the palm sugar industry in Lombo Village is a strategy that supports aggressive growth or (Growth Oriented Strategy), in this case the appropriate alternative strategy is the SO (Strength–Opportunities) strategy, by utilizing the strengths and opportunities: (1) Optimizing the production of palm sugar which is unique and distinctive than other products and the various uses of palm sugar products in various product derivations such as palm sugar. (2) Making palm sugar a regional superior commodity that can increase people's income, and (3) Optimizing government and private sector support in diversifying palm sugar products and improving marketing management through local or national promotions and exhibitions.

In addition to utilizing the strengths that already exist above, to develop palm sugar production, innovations are needed including: 1) The engineering of the palm sugar production process encountered several problems, namely if the sap is not cooked immediately after being taken from the palm tree, it will result in a decrease in PH. The decrease in pH will have an impact on the quality of the palm sugar produced. Engineering in the production process by adding plant extracts that have the function of preventing "gait" is very possible to increase the value of the product conversion factor to be higher, 2) The design of the palm sugar packaging design is more attractive and varied. The packaging will be designed by prioritizing the practical, economical, hygienic side, and not burdening producers in terms of production and consumers in terms of price.

4. Conclusion
Based on the results of data analysis on the palm sugar manufacturing industry in Lombo Village, Sidrap Regency, internal and external environmental factors were obtained, including: 1) The internal environment that provides strength in the development of creative industries in the craft sector consists of superior products, skills passed down from generation to generation, human resources from family members, availability of raw materials, unique and distinctive products, products with many benefits, innovation and development product. 2) The internal environment that provides strength in the development of creative industries in the craft sector consists of superior products, skills passed down from generation to generation, human resources from family members, availability of raw materials, unique and distinctive products, products with many benefits, innovation and development product. 3) The external environment that provides opportunities for the development of creative industries in the craft sector consists of: Government attention and support, local events and exhibitions, internet and telecommunications networks, added value and potential for the development of palm sugar products, and support from the tourism sector. 4. The external environment that poses a threat to the development of creative industries in the craft sector consists of: Bad climatic or weather conditions, difficulty in planting trees, unequal government assistance, low interest in future generations, and limited technological knowledge.

Based on the results of the analysis of the internal and external environment related to the development strategy of the palm sugar manufacturing industry in Lombo Village, it is in a very profitable position. Where the small palm sugar industry in Lombo Village has strengths that can be maintained or improved, and have opportunities that can be utilized properly and to the maximum extent possible. Thus, the development strategy that should be used is a strategy that supports aggressive growth, namely the S-O (Strength-Opportunities) strategy, namely by utilizing the strengths of the industry to seize existing opportunities, including: (1) Optimizing the expertise and skills of the craftsmen to be committed to carrying out palm sugar product innovations into ant sugar. (2) Making palm sugar a superior product of
Sidrap Regency. And (3) Optimizing the support of the government and the private sector in processing palm sugar products, (4) improvement of marketing mechanisms and market information both for domestic needs and for export potential. (5) Technology mastery. (6) Strengthening product diversification and packaging innovation.

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