Financial analysis of pidada syrup (Sonneratia caseolaris)

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Abstract. The mangrove forest is a tropical and sub-tropical coastal vegetation community dominated by several species of mangrove trees. Mangroves are able to grow and develop in muddy tidal and coastal areas. This study aims to identify the feasibility of pidada processing business into syrup in Lubuk Kertang Village, West Brandan District, Langkat Regency, North Sumatra, Indonesia. This study uses data analysis by calculating Revenue Cost (RC), Break-Even Point (BEP) and Added Value, using data 6 times pidada syrup production. The RC ratio value of pidada syrup obtained ranged from 1.62 - 3.71 for the production of pidada syrup. The highest RC Ratio of pidada syrup is found in the production carried out on August 24, 2017, with values of 3.71. This study indicated that the business of pidada syrup could be economically profitable and financially feasible.

1. Introduction
The mangrove forest is a tropical coastal vegetation community that is dominated by several species of mangrove trees that are able to grow and develop in tidal and muddy beaches. Pidada (Sonneratia caseolaris (L.) Engl., Sonneratiaceae) is a freshwater tolerance of mangroves known to produce fruit for nutritional function [1]. The pidada syrup and fruit nutrition content have been reported recently [2].

Mangrove processed products produced in Lubuk Kertang Village, Langkat, North Sumatra is pidada syrup, by utilizing pidada plants that thrive and are abundant in the Lubuk Kertang village area. Pidada fruits have been processed into syrup. Pidada processing industries endeavor on a home industry scale [2]. To increase income, it is necessary to conduct an economic feasibility study. Selling mangrove products is to provide awareness to the community that mangroves provide many benefits and encourage the community to preserve mangrove forests [3]. There is no related research on the economic feasibility study of processed mangrove products produced in Lubuk Kertang Village, West Brandan District, Langkat Regency. This study, therefore, aimed to identify the feasibility of pidada processing business into syrup in Lubuk Kertang Village, West Brandan District, Langkat Regency, North Sumatra, Indonesia.
2. Materials and method

2.1. Materials
 дней pedada fruit (S. caseolaris) is done by picking or quoting, ripe pedada fruit is yellowish-golden green, and the fruit will fall. Fruit days that is fully ripe is characterized by yellowish green-brass with a soft texture, and the fruit has fallen [4]. Thus the production of pedada syrup cannot be carried out continuously, because it is influenced by the fruits season and its harvest from the pedada plant.

2.2. The process of processing pedada fruits into processed products
To know the process of processing pedada fruit into pedada syrup, it can be done by direct observation, through the interview method to the Abadi Mangrove farmer/fisherman group.

2.3. Business feasibility analysis
A business feasibility analysis was carried out to assess whether a business was feasible and whether it was profitable or not economically profitable [5].

2.4. Business cost and revenue analysis
This analysis was carried out to determine the magnitude of the profits derived from the effort made [6]. Production costs (output) consist of fixed costs and variable costs [6]. Fixed costs are costs incurred by an industry with a fixed amount. While the variable costs consist of the cost of main ingredients, supporting materials, fuel costs, and marketing costs. Furthermore, the value of the input (input) of the industry was the product of the cost of goods with the number of goods produced [7].

3. Results and discussions

3.1. Pedada syrup production costs and revenues
The details of the costs incurred for each pedada syrup production made can be seen in Table 1. Table 1 shows that the revenue obtained ranges from 120,000 - 750,000 IDR and the profits obtained ranged from 46,000 - 548,000 IDR and the largest revenue obtained from the production of syrup pedada was on August 24, 2017, in the amount of 750,000 IDR, - per production which is the result of sales of pedada syrup as many as 50 bottles at a price of 15,000 IDR per bottle. The amount of income obtained from the sale of 50 bottles of syrup pedada was 548,000 IDR, after deducting the production cost of 202,000 IDR. This shows that the processing of pedada fruit into syrup was feasible because it produced a significant profit.

While the lowest receipts obtained from pedada syrup production is on July 25, 2017, in the amount 120,000 IDR, - per production is the result of the sale of 8 bottles of syrup a price of 15,000 IDR. The amount of revenue obtained from the sale of 8 bottles of pedada syrup was 46,000 IDR - after deducting the production cost of 74,000 IDR. This condition was due to the lack of consumer demand for pedada syrup so that only a few are produced by the Abadi Mangrove farmers group.

3.2. RC ratio analysis
RC ratio value is the ratio of total revenue to the costs incurred and can be used to determine the feasibility of a business. In Table 7 it is known that the value of RC Ratio obtained ranged from 1.62 to 3.71 and the ratio between revenue and total production costs (RC) was most excellent, namely in the production of syrup on August 24, 2017, amounted to 3.71 and the lowest at date and July 25 2017 with an RC value of 1.62. This shows that the business value of the RC ratio is higher than 1 (one) so that the business is feasible to do because it generates profits.
Table 1. RC ratio analysis of syrup pidada

| Date             | Total Reception (TR) IDR | Total Production Cost (TC) IDR | RC Ratio (TR/TC) |
|------------------|--------------------------|-------------------------------|------------------|
| March 20, 2017   | 150,000                  | 74,000                        | 2.02             |
| April 05, 2017   | 150,000                  | 74,000                        | 2.02             |
| April 17, 2017   | 150,000                  | 74,000                        | 2.02             |
| July 25, 2017    | 120,000                  | 74,000                        | 1.62             |
| July 29, 2017    | 510,000                  | 161,000                       | 3.16             |
| August 24, 2017  | 750,000                  | 202,000                       | 3.71             |

This means that the minimum capital 74,000 IDR will benefit from 1.62 times of the total capital. This value is in accordance with the statement of [8], which states that if the revenue cost ratio results are higher than one, the business will obtain profits and be feasible. This work is in line with research conducted [9] that the processing of developing fruit made into dodol was financially feasible because the RC value is more significant than one.

3.3. Break-Even Point analysis (BEP)

Break event point (BEP) analysis is needed to show the break-even point of the work done. BEP calculations for the production of pedada syrup. The processing of pidada syrup has the same Production BEP value of 4 bottles, but the lowest price BEP value on August 24, 2017, was 4,040 IDR per bottle from the actual price of 15,000 IDR per bottle. If the production of pidada fruit processing far exceeds the production BEP, the pidada fruit processing business benefits and the business can be carried out. Meanwhile, if the selling price is more significant kike fruit processing exceeds the BEP price, the effort also will generate profits for business owners.

3.4. Value-added analysis

Pedada syrup production is carried out six times. Based on these data, it can be seen that the most significant added value is in production dated March 20, April 05, and April 17, 2017. By using fruit raw materials pedada as much as 1 kg can produce as much as ten bottles of pidada syrup. If the output price (product price) is 15,000 IDR/bottle and a conversion factor of 10, the production value is 150,000 IDR/bottle.

Thus, the added value obtained from one kilogram of pidada for syrup is 145,000 IDR/kg. The least value added is in the production dated July 29, 2017, using raw materials as much as 4 kg of pidada capable of producing 34 syrup pidada bottles. With the same output price (product price), it produces a conversion factor of 8.5 with a production value of 127,500 IDR/kg.

Table 2. Cost and income analysis of processing pidada fruit into pidada syrup (in IDR)

| Date            | TFC   | TVC    | TC (TFC + TVC) | P   | Q   | TR (PQ) | I (TR-TC) |
|-----------------|-------|--------|---------------|-----|-----|---------|-----------|
| 20 March 2017   | 45,000| 29,000 | 74,000        | 15,000| 1 | 150,000 | 76,000    |
| 5 April 2017    | 45,000| 29,000 | 74,000        | 15,000| 1 | 150,000 | 76,000    |
| 17 April 2017   | 45,000| 29,000 | 74,000        | 15,000| 1 | 150,000 | 76,000    |
| 25 July 2017    | 45,000| 29,000 | 74,000        | 15,000| 8 | 120,000 | 46,000    |
| 29 July 2017    | 45,000| 116,000| 161,000       | 15,000| 34| 510,000 | 349,000   |
| 24 August 2017  | 45,000| 157,000| 202,000       | 15,000| 50| 750,000 | 548,000   |

3.5. Product development

Implementation of the marketing of processed pidada is still relatively limited. Where this product marketing is only available in that area. In addition, sales are made outside the area if there is a request for orders from Medan City or outside Medan City as souvenirs from Lubuk Kertang Tourism Village.
In 2017 the Abadi Mangrove farmer group once sold pidada syrup to PRSU Medan, and in 2018 participated in a TV station program, TVRI coverage, to introduce mangrove processed products from Lubuk Kertang Village. But this sales effort did not last long, because the processed mangrove products did not sell well in the market, because the jeruju and pedada plants were processed mangrove products that were new to the market, so the community was not interested in buying the product, and the seller was also unable to promote the product.

4. Conclusion
This study indicated that the business of pidada syrup could be economically profitable and financially feasible.

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