Financial approach of jeruju (Acanthus ilicifolius) crackers

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Abstract. The jeruju crackers were increasing the economic income of the community in Lubuk Kertang Village, besides that was provide knowledge for the community to mangroves provided benefits for invite of community to conserve mangrove forest. This study aims to identify the processing of jeruju leaves into processed products; to analyse the business feasibility of processing jeruju leaves into crackers in Lubuk Kertang Village, West Brandan District, Langkat Regency. This study uses data analysis by calculating R/C RC Ratio, Break Even Point (BEP) and Added Value, using production data 12 times the production of jeruju crackers. The RC Ratio value of jeruju crackers obtained ranged from 1.04 - 2.07. The highest RC Ratio of jeruju crackers was found in the production carried out on August 24, 2017 with values of 2.07. This study suggested that the business of processing jeruju can be economically profitable and financially feasible.

1. Introduction
The forests of mangrove in North Sumatera were concentrated on the east coast of North Sumatra, which are scattered in Batu Bara Regency, Tanjung Balai Asahan, Serdang Bedagai, to the mangrove forest area in Langkat Regency [1-5].The mangrove forest area in Langkat Regency has been damaged and was getting worse due to illegal logging, conversion to other land uses such as agricultural, oil palm plantation, ponds, and housing [2].

Mangrove forest in Lubuk Kertang Village, West Brandan District from 19996-2006 experienced a decline in mangrove forest by 109.4 ha. And in 2006-2016, mangrove forests continued to experience damage covering an area of 291.2 ha, an increase of more than 100%. More than twenty (20) years of mangrove forest were lost over 400.4 Ha, wherein equivalent for 20.02 Hectares/years [6].

The product by mangrove can be produced from Lubuk Kertang Village are jeruju crackers [7], by utilizing jeruju when evolved and abundant from Lubuk Kertang Village region. The idea of utilizing mangrove plants was produced from the Tani Abadi Mangrove Farmer Group in the village with the aim of increasing the economic income of the community, besides that the aim of wherein thriving
also abundant in Lubuk Kertang Village area to sell the mangrove product was provide knowledge for the community to mangroves provided benefits for invite of community in conserve mangrove forest. This study aimed to indicate feasibility in business to process of leaves on jeruju for spicy cracker and original crackers from Lubuk Kertang Village.

2. Materials and methods

2.1. Processing of jeruju crackers production
Leaves of jeruju (*A. ilicifolius*) were collected by picking whole leaves. Then the production of jeruju crackers can be performed continuously, furthermore, they were abundantly available. To identify the data processing of jeruju leaves into processed products using descriptive qualitative method. To identify processing leaves to cracker performed by direct observation, while the method of an interview for the group of Abadi Mangrove fisherman and farmer. The interview included the minimum capital, profitability, cost production, and sustainability of the industry.

2.2. Processing business of jeruju cracker
The feasibility of business was analysed to evaluate the business feasibly and profitable or not for economic profitability [8]. If an income cost of the ratio is greater than one (1), it means that the business is profitable and worthy to do so. Based on this value, that was determined the income generated is quite large or not from the processing of jeruju crackers, this is influenced by the relatively small capital.

2.3. Processing of jeruju crackers cost
This study was performed to assess the extent that profits arising from an initiative. The cost of production and output was constant costs to homogenous or not [9]. The constant costs were expenses borne from the industry. Although the values of costs are key product prices, supporting supplies, fuel costs, and commerce costs. In addition, the industry's value production was the sum of commodity costs by a total produced [10].

3. Results and discussion
Revenue obtained is in the range of IDR 150,000 - IDR 500,000 and the profits obtained were between IDR 5,830 - IDR 258,830 and a highest income achieve for production to crackers jeruju on August 24 (2017), which was IDR. 500,000 each production as a result to sales of 100 packs of jeruju crackers prices IDR. 5,000/pack. The total income achieve from 100 packs sold of jeruju crackers for IDR 258,830 when reduced the production cost IDR 255,170. This result evaluated to processing leaves from jeruju into cracker was feasible.

Meanwhile, the lowest revenue obtained from the Jeruju cracker production was on July 29 2017 and November 15 2018, which was IDR 150,000 per production which was the result of selling 30 packs of jeruju crackers prices IDR 5,000 for each pack. The total income earned for selling 30 packs the jeruju crackers is IDR 5,830 when reduced production costs to IDR 144,170,- in case due to a deficiency from the consumer request for jeruju crackers thus a few were produced from the group of Abadi Mangrove Farmer. However, it also showed on processing the jeruju leaves to crackers was proper due to still made the profit.

The RC ratio was the ratio from total income in costs established and used to assign the feasibility business. Table 1 showed to known of R/C Ratio value to obtained among 1.04 - 2.07 and the largest comparison among the income and total cost production (R/C) is the production of jeruju crackers on August 24, 2017 at 2.07 and the lowest is on August 24, 2017 and 15 November 2018 by RC value to 1.04. The data showed the business for the RC ratio was greater than one (1) though the business was feasible due to achieves a profit [11].
Table 1. Analysis from the jeruju crackers in Lubuk Kertang Village.

| Date             | Revenue (TR) IDR | Total Production (TC) IDR | Cost | RC Ratio (TR / TC) |
|------------------|------------------|---------------------------|------|-------------------|
| July 29, 2017    | 150,000          | 144,170                   |      | 1.04              |
| August 24, 2017  | 500,000          | 55,170                    |      | 2.07              |
| February 16, 2018| 175,000          | 165,170                   |      | 1.05              |
| February 17, 2018| 240,000          | 178,000                   |      | 1.34              |
| September 29, 2018| 200,000         | 180,170                   |      | 1.11              |
| October 20, 2018 | 200,000          | 179,170                   |      | 1.12              |
| October 30, 2018 | 205,000          | 183,670                   |      | 1.12              |
| October 31, 2018 | 80,000           | 188,170                   |      | 1.48              |
| November 3, 2018 | 190,000          | 178,170                   |      | 1.06              |
| November 15, 2018| 150,000          | 144,170                   |      | 1.04              |
| November 30, 2018| 90,000           | 191,170                   |      | 1.52              |
| March 2, 2019    | 245,000          | 178,170                   |      | 1.38              |

This result pointed out that with a minimum capital of IDR 144,170,- will get a profit from the sale of 1.04 times the total of capital. Furthermore, that states if an income cost of the ratio is greater than one (1), it means that business is profitable and worthy to do so [12]. Based on this value, the income generated is quite large from the processing of jeruju crackers, this is influenced by the relatively small capital. When viewed from the sustainability of the industry, the processing of jeruju crackers is more profitable, because the raw material for jeruju is not limited by season, so the production of jeruju crackers can be carried out in a sustainable manner [7].

To assess the financial viability of a business can also be done through a breakeven analysis (BEP). BEP is an analysis that aims to show costs equal to income. BEP analyzed needed to indicate of break-even point to efforts made [13]. The BEP calculation for the production of jeruju cracker processing was displaying in Table 2.

Table 2. Break Even Point analysis of jeruju crackers in Lubuk Kertang Village.

| Date             | Production Volume (wrap) | Selling price (IDR / pack) | Reception (IDR) | BEP Production (wrap) | BEP Prices (IDR / pack) |
|------------------|--------------------------|----------------------------|-----------------|-----------------------|-------------------------|
| July 29, 2017    | 30                       | 5,000                      | 150,000         | 28                    | 4,805                   |
| August 24, 2017  | 100                      | 5,000                      | 500,000         | 28                    | 2,551                   |
| February 16, 2018| 35                       | 5,000                      | 175,000         | 31                    | 4,719                   |
| February 17, 2018| 48                       | 5,000                      | 240,000         | 29                    | 3,711                   |
| September 29, 2018| 40                      | 5,000                      | 200,000         | 33                    | 4,500                   |
| October 20, 2018 | 40                       | 5,000                      | 200,000         | 33                    | 4,480                   |
| October 30, 2018 | 41                       | 5,000                      | 205,000         | 33                    | 4,480                   |
| October 31, 2018 | 56                       | 5,000                      | 280,000         | 28                    | 3,360                   |
| November 3, 2018 | 38                       | 5,000                      | 190,000         | 34                    | 4,688                   |
| November 15, 2018| 30                       | 5,000                      | 150,000         | 28                    | 4,895                   |
| November 30, 2018| 58                       | 5,000                      | 290,000         | 28                    | 3,296                   |
| March 2, 2019    | 49                       | 5,000                      | 245,000         | 29                    | 3,636                   |

Table 2 shows that the processing of jeruju leaves on August 24, 2017 had the lowest BEP Production and BEP prices, namely BEP Production of 28 packs of 100 packs of production and BEP prices of IDR 2,551 per pack from the selling price of IDR 5,000 per pack. Whereas the jeruju leaf processing to production so far to exceeds of BEP production, that jeruju leaf business and processing
will benefit also effort finished. Thus, when the selling price of jeruju leaf processing is greater than of BEP cost, that business will also, the generate of profits to owner business.

This is in accordance with [14] which states that if the Production BEP is smaller than the production, the farming business was feasible, as well as if the BEP price is lower than the product price, the farming business is feasible. Thus, this is a opportunities for marketing jeruju crackers managed by the Abadi Mangrove Farmer Group in Lubuk Kertang Village [7].

For 2017, the group of Abadi Mangrove Farmer sold processed jeruju products in PRSU Medan, from participated in event on TV station (2018), namely TVRI, with the aim of introducing processed mangrove production in Lubuk Kertang Village. However the sales business not commit last long, due to the process of mangrove product did not sell great at the market, meanwhile, the jeruju leaves were processed were new in the market, thus people were nothing interested for buying these products, and the sales were also unable for promote these products.

4. Conclusions
A highest Ratio value (RC) jeruju crackers was found to the production which was performed on August 24 in 2017 wherein the values of 2.07 and 3.71. Jeruju leaf and pedada fruit processing business can profitable to economic and feasible to financial, because it has an RC Ratio value greater than one. With a minimum capital of IDR 144,170, the profit from the sale of 1.04 times the total of capital. It means the jeruju crackers business is profitable and worthy to do so. Whereas, the sustainability of the industry, the processing of jeruju crackers is more profitable, because the raw material for jeruju is not limited by season, so the production of jeruju crackers can be carried out in a sustainable manner.

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