

## **Analysis of Clove Leaf Oil Distillation Business Income (Clove Leaf Oil) in Matuo Sub-Village, Lelean Nono Village, Baolan District, Tolitoli Regency (Case Study of Tiga Jaya Essential Oil Refinery)**

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### **ABSTRACT**

Analysis of Clove Leaf Oil Distillation Business Income (Clove Leaf Oil) in Matuo Sub-Village, Lelean Nono Village, Baolan District, Tolitoli Regency (Case Study of Tiga Jaya Essential Oil Distillation), This study aims to determine how much Clove Leaf Oil Distillation Business Income (Clove Leaf Oil) in Matuo Sub-Village, Lelean Nono Village, Baolan District, Tolitoli Regency (Case Study of Tiga Jaya Essential Oil Distillation). This research uses a qualitative research design. The data source is primary data, namely data obtained through interviews and documentation related to this research. The data analysis method used is descriptive qualitative and quantitative, namely production cost analysis, business revenue analysis, income analysis, and R / C Ratio efficiency level analysis.

After conducting research and discussions, it has been revealed that the Cloves Leaf Oil Distillation Business (Tiga Jaya Essential Oil Distillation) operating in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency, During the 2022 period, a cloves leaf oil distillation business incurred a total cost of Rp. 993,196,500. The total revenue generated was Rp. 1,234,464,000. This indicates that the business earned a total income of Rp. 241,267,500 in one year. After conducting a case study of Tiga Jaya Essential Oil Distillation in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency, the feasibility of Clove Leaf Oil Distillation Business for 2022 was found to have an R/C ratio of 1.24. The R/C Ratio of more than one indicates that the Cloves Leaf Oil Distillation Business located in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency (as examined in the case study of Tiga Jaya Essential Oil Distillation) is viable and feasible.

**Keywords:** Cloves leaf oil distillation, Income

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### **1. INTRODUCTION**

Central Sulawesi is a major producer of clove leaves, which are used to

make essential oils. The clove plant, scientifically known as *syzygium aromaticum* L, is a significant source of essential oils, ethereal oils, and volatile

oils, making clove oil a highly valuable commodity in Indonesia. Clove plants can produce three different types of essential oils: clove oil, clove stalk oil, and clove leaf oil. It has been explained that clove leaves, which are a part of the clove plant, are typically discarded by clove farmers and the community. However, these leaves can be processed into clove oil (also known as cloves leaf oil), providing them with added value.

Clove leaf oil is commonly used to freshen breath, treat ulcers and toothache, strengthen gastric mucus, and boost white blood cell count (Waluyo, 2004; Plantus, 2008). Essential oils are widely used in various industries. The cosmetic and perfume industry utilizes essential oils in the production of soap, toothpaste, shampoo, lotion, and perfume. The food industry uses them as flavor enhancers. Essential oils are also used in the pharmaceutical industry as anti-pain, anti-infection, and bacteria-killing agents (Sulaksana, 2015).

Tolitoli Regency is one of the largest areas for producing cloves, but there are only a few distillation factories for clove leaf oil, and the leaves cannot be fully utilized as raw material. The clove leaf oil refining industry is a relatively new and recognized type of business in the Tolitoli Regency area. The research will be conducted at Mr. Nanang Anwar's distillery, which was established in early 2013 in Matuo Hamlet, Lelean Nono Village, Baolan District in Tolitoli Regency. Clove leaf oil is extracted by distilling dried clove leaves that are purchased from the community in Lelean Nono Village. Researchers have found that the purchase price of clove leaves is Rp.

2,300 per kilogram, while the sales price of clove leaf oil is Rp. 167,000 per kilogram. The production process can be carried out up to 26 times per month, depending on the availability of raw materials.

According to the survey results, Tiga Jaya Essential Oil Distillation Business faces production issues during the rainy season as moist clove leaves produce less oil. When the clove harvest season arrives, the production of the distillation business suffers because they don't receive enough clove leaf raw materials from the community. As a result, they are unable to sell their product to other towns due to the contract system that requires them to close the book at the end of the year. This slows down the marketing of the oil product. Researchers aim to examine the income earned by the clove leaf oil distillation industry in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency, specifically focusing on the case study of Tiga Jaya Essential Oil Distillation.

## OVERVIEW

### 1. Definition of Essential Oil

Essential oils are oils extracted from plants, containing volatile components that are often referred to as "flying oil". They are also known as etherial or etheric oils because they resemble ether. Internationally, these oils are commonly referred to as essential oils because of their characteristic aroma and fragrance. Essential oils are typically colorless, but their color may darken over time if not stored properly. They are volatile due to their low vapor point and, like other oils, they are usually insoluble in water and other polar solvents. Chemically, essential

oils are complex mixtures of various compounds, but a specific compound is typically responsible for a particular aroma. Most essential oils belong to the class of terpene and terpenoid organic compounds that are oil-soluble (lipophilic). (Khozali A., 2012).

## 2. General Definition of Cloves and Clove Leaf Oil

Cloves, also known as *Syzygium aromaticum* or *Eugenia aromaticum*, are dried flower buds from the Myrtaceae family (Sudarmo, 2005). Clove is a plant that is native to Indonesia and is widely used as a spicy seasoning in many European countries. In Indonesia, it is also a key ingredient in cigarettes. In China and Japan, cloves are used as an incense material. Clove oil is often used in aromatherapy and is also known to be useful in treating toothaches. Cloves are grown mainly in Indonesia (Banda Islands) and Madagascar, also thriving in Zanzibar, India, and Sri Lanka.

Essential oils, also known as ethereal or volatile oils, have significant potential in Indonesia. Essential oils are natural extracts from certain types of plants, either from leaves, flowers, wood, seeds, and even flower pistils. There are at least 70 types of essential oils that have been traded in the international market and 40 of them can be produced in Indonesia. Although many types of essential oils can be produced in Indonesia, only a few types of essential oils have been cultivated in Indonesia.

## 3. Definition of Industry

Based on Godam's definition from 2006, an industry refers to a business or activity that involves processing raw materials or semi-finished goods to create

finished goods that have added value and are sold for profit. Industrial products can come in the form of goods or services. There are various types of industries.

## 4. Definition of Clove Leaf Oil Distillation

Hidayat and Sutrisno (2006) explained that the distillation process involves the use of water vapor. The material is placed on a sieve and is not in direct contact with water but with steam. The main components of the distillation process include:

### a. Distillation kettle

The distillation kettle is a cylindrical iron drum used to extract essence from dry clove leaf material. It has a capacity of 600-800 kg and comes equipped with a lid that can be opened and closed. A filter is placed in between the distilled material and water. On average, it takes 7-9 hours for one distillation cycle to complete.

### b. Cooling pipe

The purpose of the cooling pipe is to condense water vapor and oil during the distillation process. The cooling pipe used is a long pipe that is placed between the distillation kettle and the container where the result is collected. This pipe is inserted into a water tub, but it's important to note that water circulation in the tub is almost certainly absent because no additional water is added during the distillation process.

### c. Result container

The container tool serves to accommodate the distilled products that come out of the cooling pipe. This tool is made of jerry cans that are split in half with two holes at the top and bottom, the yield container is placed at the end of the cooling pipe.

## 2. METHODS

The research conducted was Qualitative Research with Descriptive Processing. The objective of this research was to obtain an understanding and explanation of the income of the Tiga Jaya Essential Oil Distillation Business located in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency. The research was carried out in 2023 and the business owner of Tiga Jaya Essential Oil Distillation in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency was the primary source of information. The informants are the owner of the Clove Leaf Oil Distillation Business, laborers, and clove leaf collectors. The data collection methods used include observation, interviews, and documentation. Data analysis methods are also utilized.

- a. Qualitative analysis is a research procedure which Descriptive data is produced through written or spoken words, as well as through observed behavior.
- b. Quantitative analysis
  - 1) Production Cost Analysis using the formula

$$TC = TVC + TFC$$

Description:

TC: Total Cost (total cost)

TVC: Total Variable Cost (total variable cost)

TFC: Total Fixed Cost (total fixed cost)

- 2) Business Revenue Analysis with the following formula:

$$TR = Q \times P$$

Description:

TR: Total Revenue / Revenue (Rp / month)

Q: Total Monthly Production (unit)

P: Price (rupiah)

- 3) Income Analysis is with the following formula:

$$\pi = TR - TC$$

Description:

II: Business Income

TR: Total Revenue/Revenue of the business

TC: Total cost/cost (variable cost and fixed cost)

- 4) Efficiency Level Analysis R/C Ratio

To determine the efficiency or feasibility of the business

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

Description:

R/C ratio: Business feasibility or efficiency

TR: Total revenue

TC: Total cost

## 3. RESULT AND DISCUSSION

### 3.1 Clove Leaf Oil Distillation Process

In Matuo Hamlet, Lelean Nono Village, Baolan Sub-district, Tolitoli Regency, clove leaf oil is produced through a distillation process. The process involves gradually adding 1,200 kg of clove leaves into a distilled kettle while trampling and pressing them to increase their density. Next, the raw material (clove leaves) is heated with approximately 80-100 liters of water, and the mixture is heated for around 12 hours.

The process begins with heating firewood, followed by using previously distilled clove leaf waste (pulp). During this process, water vapor and clove leaf oil vapor will pass through the stills pipe located inside the water reservoir, which acts as a cooler, and then enter the condenser. This condensation process converts the water vapor and clove leaf oil vapor into a liquid form, which is collected in drums or jerry cans. The final step is to package the liquid in jerry cans containing 24 liters.

### **3.2 Analysis of Production Costs of Clove Leaf Oil Distillation Business**

Production costs refer to the expenses incurred by a company during its operations, consisting of both fixed and variable costs.

#### **a. Fixed Cost**

Fixed costs are expenses that do not vary with the quantity of products produced. In the clove leaf oil distillation business, fixed costs include tool depreciation costs and taxes. These costs are not depleted in a single production cycle, unlike variable costs. Tool depreciation costs are incurred in the production process and are not dependent on the size of the production output.

According to the study, the clove leaf oil distillation business had total fixed costs of Rp.49,907,500 in one year.

#### **b. Variable Cost**

Variable costs in this study consist of the cost of raw materials, labor, electricity and gasoline.

##### **1) Raw Material Costs of Clove Leaf Oil**

The cost of clove leaf oil production includes purchasing clove leaves and firewood for distillation.

According to the study, the total cost of purchasing clove leaf raw materials from January to December was Rp. 850,080,000, with 369,600 kg bought at a price of Rp. 2,300 / kg. In the same period, firewood raw materials were purchased for Rp. 6,725,000, with 269 kg bought for Rp. 25,000 / kg. Therefore, the total cost of clove leaf oil and firewood raw materials purchased during this period amounted to Rp. 856,805,000.

##### **2) Labor Costs**

Labor costs are costs incurred to pay for labor services. According to the study, the labor costs for the clove leaf oil distillation business can vary each month depending on the amount of production carried out. For instance, the clove leaf oil distillation business incurred labor costs from January to December 2022 for carrying out 308 distillations with a total of 9 workers, each paid a wage of Rp. 29,000/person, amounting to Rp. 80,388,000.

##### **3) Total Variable Cost**

The variable cost of the clove leaf oil distillation business has been calculated based on various components, such as raw material cost (clove leaves and firewood), labor, electricity, and gasoline. The total cost amounts to Rp. 943,289,000, which includes raw material expenses worth Rp. 856,805,000, labor cost of Rp. 80,388,000, electricity cost of Rp. 2,400,000 and gasoline cost of Rp. 3,696,000 for one year.

**c. Total production cost**

The total cost of producing clove leaf oil includes fixed and variable costs. According to the study, the clove leaf oil distillation business incurred a total production cost of Rp. 993,196,500. The cost came from fixed costs of Rp. 49,907,500 and variable costs of Rp. 943,289,000.

**d. Analysis of Clove Leaf Oil Distillation Business Revenue**

The revenue in this study is calculated by multiplying the amount of production with the selling price. According to the study, the clove leaf oil distillation business generated a total revenue of Rp. 1,234,464,000 by selling 7,392 liters of clove leaf oil within a year.

**e. Analysis of Clove Leaf Oil Distillation Business Income**

Revenue is the amount of money generated by a business after deducting all the costs incurred in the production process. According to the study, the clove leaf oil distillation business had a total revenue of Rp. 1,234,464,000 and total production costs of Rp. 993,196,500, resulting in a revenue of Rp. 241,267,500 in 2022. This income is the most significant aspect of a business and is the primary goal of any business.

**f. Analysis of Efficiency Level/Feasibility of Clove Leaf Oil Distillation Business**

Feasibility analysis involves comparing revenue with total costs to determine the viability of a business.

The study has shown that the distillation of clove leaf oil business in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency is feasible in 2022. The R/C ratio obtained from the total revenue and cost of the business is 1.24. This means that the total revenue of the clove leaf oil distillation business is Rp. 1,234,464,000 and the total cost is Rp. 993,196,500. According to Soekartawi's opinion (2006), a ratio greater than 1 is feasible, a ratio less than 1 is not feasible, and a ratio equal to 1 indicates that the revenue from production is sufficient to cover the costs incurred.

**4. CONCLUSIONS**

After analyzing the income of clove leaf oil distillation business in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency, the following conclusions can be drawn:

- a. The clove leaf oil distillation business in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency has earned a total income of Rp. 241,267,500 in one year. The total costs incurred in running the business amount to Rp. 993,196,500, and the total revenue generated during the 2022 period is Rp. 1,234,464,000.
- b. According to the feasibility analysis, the clove leaf oil distillation business in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency is viable. The R/C ratio during the

2022 period was calculated to be 1.24, which is greater than one. This indicates that the business is feasible and can be pursued in the aforementioned location.

### 1. Suggestions

The suggestions that researchers propose for the development of clove leaf oil distillation businesses in Matuo Hamlet, Lelean Nono Village, Baolan District, Tolitoli Regency, namely:

- a. To the owner of the clove leaf oil distillation business, please make sales not only offline but also make sales online so that this clove leaf oil product is better known by the wider community so that sales will increase.
- b. To support the development of the Tiga Jaya Essential Oil distillation business, researchers are encouraged to expand the research area and use other analytical methods.
- c. The government, especially the Lelean Nono Village government, pays more attention to businesses in their area, especially the clove leaf oil refining business.

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