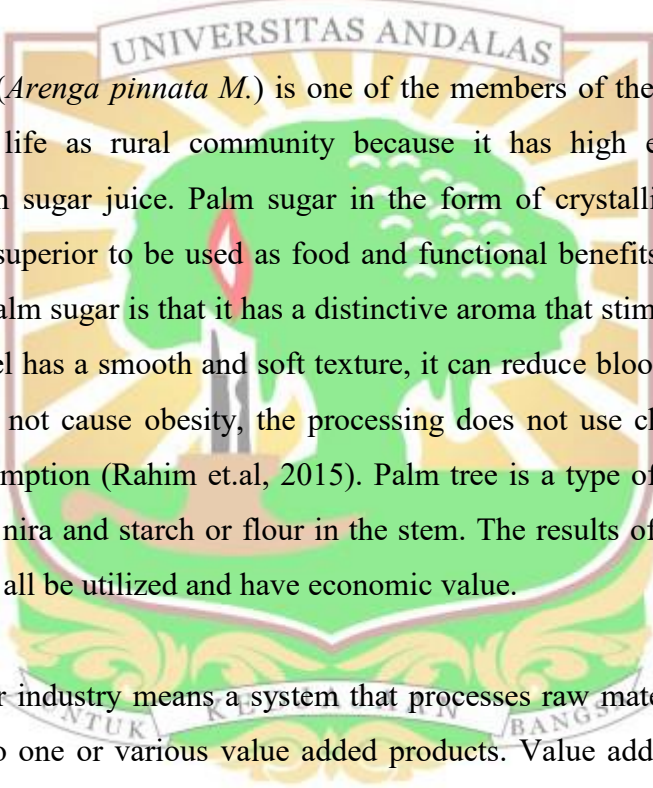


CHAPTER I

INTRODUCTION

This chapter contains of background, problem formulation, research objectives, scope of the research, and the session outline of the final project report.

1.1 Background



Palm tree (*Arenga pinnata M.*) is one of the members of the palm tribe very beneficial for life as rural community because it has high economic value, especially palm sugar juice. Palm sugar in the form of crystalline brown sugar which is very superior to be used as food and functional benefits for health. The advantage of palm sugar is that it has a distinctive aroma that stimulates tastes, the form of caramel has a smooth and soft texture, it can reduce blood sugar levels in diabetics, does not cause obesity, the processing does not use chemicals so it is safer for consumption (Rahim et.al, 2015). Palm tree is a type of palm plant that produces fruit, nira and starch or flour in the stem. The results of this palm sugar production can all be utilized and have economic value.

Palm sugar industry means a system that processes raw materials from palm sugar trees into one or various value added products. Value added products that have been produced from the industrial sugar system include: block palm sugar, palm syrup, palm wine, bioethanol, palm wine, palm broom, brush, palm roof, broom sticks, skewers, various palm wood crafts, palm skin shavings, palm root crafts, etc (Kusumanto, 2015).

Palm industry has high economic value because almost all parts of the plant can be utilized by the community. Palm sugar and brown sugar derived from nira that is tapped from male flowers is the product of the greatest economic value.

Derivative products from palm sugar that have the potential to be developed can be seen in the following figure (Widyawati 2012)

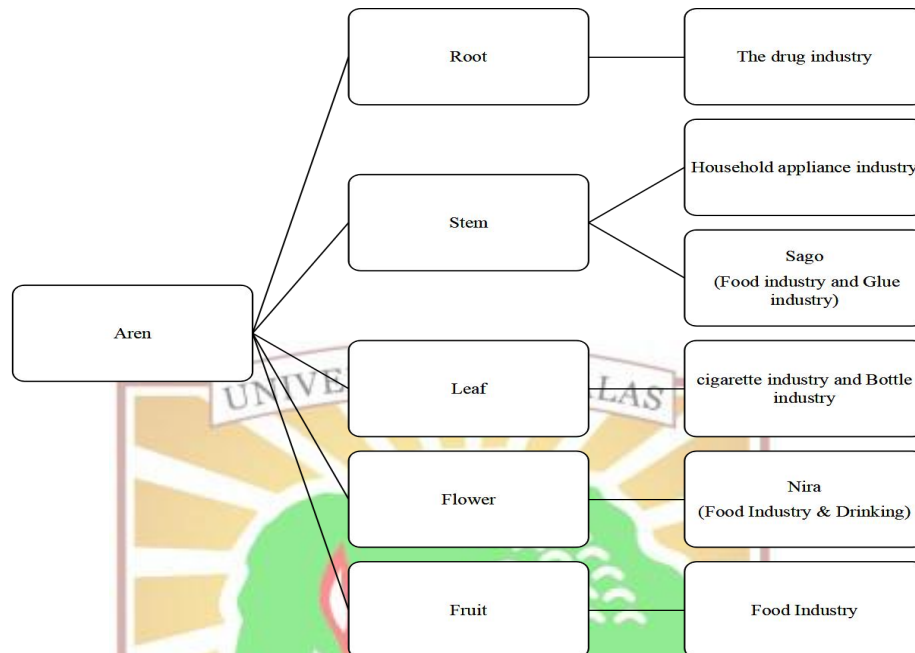


Figure 1.1 Palm Tree Derivatives

The process of producing block palm sugar can be done in two ways namely directly from palm sugar or reject brown sugar. The production process starts from tapping the nira, cooking nira, stirring and shaping of palm sugar. The process of producing brown sugar is almost the same as block palm sugar, the difference is that the palm sugar in the cooking process takes longer than the block palm sugar. After nira is cooked turns into thick, the fire is then reduced. After 10 minutes, the pan is removed from the furnace and stirred slowly until crystallization occurs. After crystallization, stirring is accelerated to form a coarse powder. This coarse powder is called semi-finished palm sugar with a moisture content still above 5%. The semi-finished brown sugar is then sent to small scale industrial brown sugar producers in each production center. To obtain these three levels of refinement, the sugar has been ground. brown sugar that does not pass in this sieve, which is called reject sugar. The reject sugar is then cooked again until it melts and thickens to form into sugar. brown sugar from the first sieve, then sifted back with a smaller size sifter, and so on until the smallest size of the sifter.

The amount of brown sugar production with three types of refinement is adjusted to market demand (Bank Indonesia, 2009).

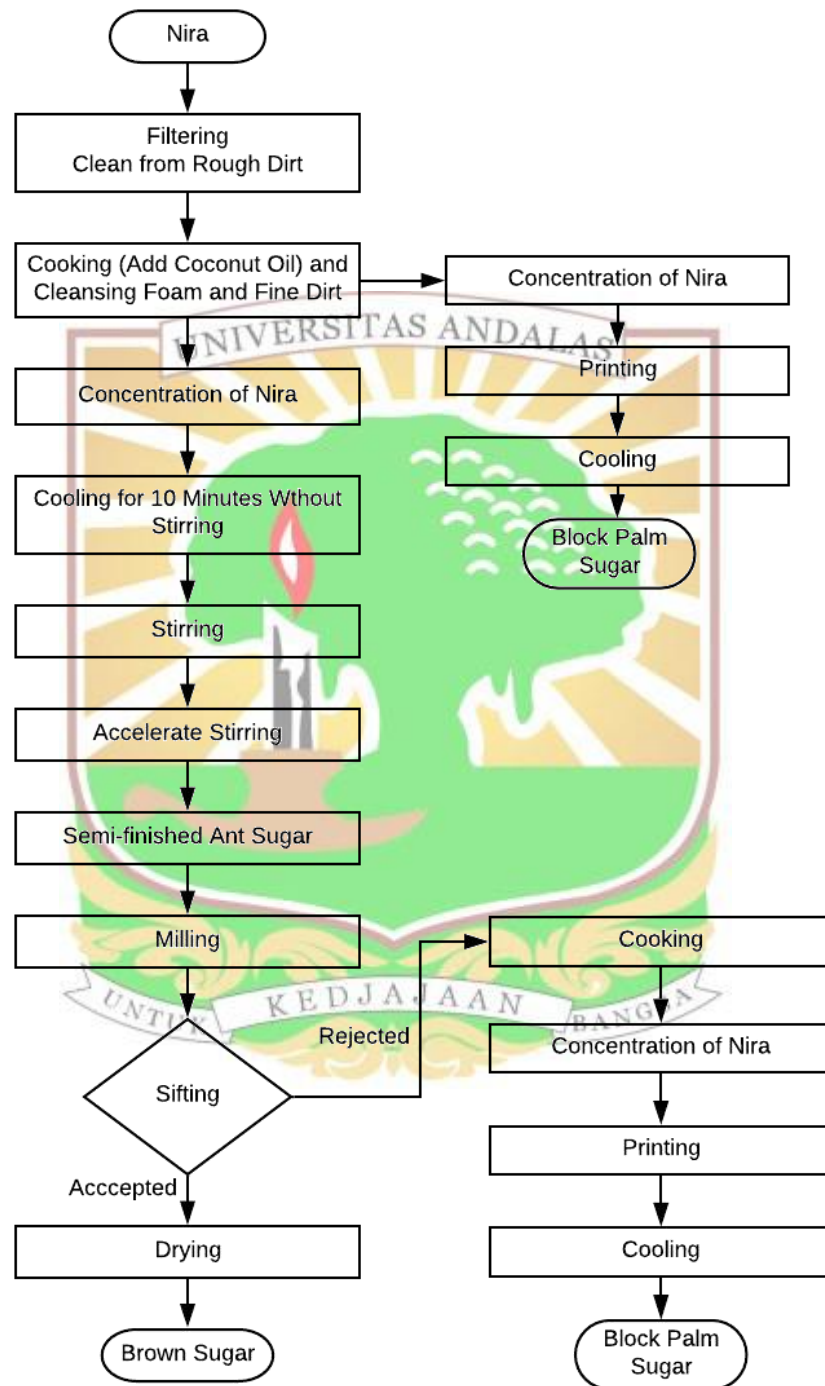


Figure 1.2 Flow Diagram of The Palm Sugar Process

Maple syrup is the syrup which is made from the xylem sap of trees such like sugar maple. Palm sugar not only for being sugar but it can be used for making syrup. To process maple syrup, the sap has been collected will be heated to evaporate water and it will produce the concentrated syrup. The sap needs to be boiled first to get the original source without addition chemical compounds. Syrup must be filtered to separate the water and sugar. Maple syrup is a trend in this area and it can take the advantage of palm sugar. The concentrate of palm sugar for some processes to become palm syrup (Chatterjee, 2016).

Palm trees are usually only used in making sugar alone, but not a few people who use nira as raw material for making traditional alcoholic drinks. this is very beneficial because in the manufacture of ethanol does not require specific fermentation that converts carbohydrates into ethanol. For processing palm sugar into alcohol, it is usually left fermented 1-2 days in order to obtain high ethanol content. The nira will change from sweet to sour. After fermented, palm sugar will undergo a simple distillation process. Usually the cooking stove uses used drums, while the steam pipes use bamboo arranged in such a way that it can condense the hot steam containing ethanol (Lay et.al, 2010).

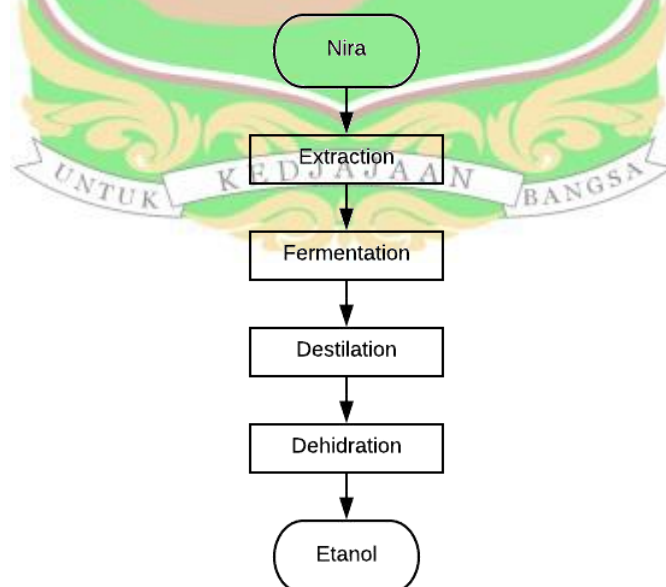


Figure 1.3 Flow Diagram of Ethanol Making Process

According to Sri Wahyuni (2019), the obstacle that is found by palm sugar farmers is that there are still many sales of raw palm sugar where the price is much lower compared to mixed sugar, which is sugar that is not pure palm sugar but is mixed with other ingredients to be marketed to consumers. The farmers have not been able yet to create and develop their profession by providing value added, so that the business they work at is more profitable. By selling raw materials, they want to immediately get income even though the price is cheap (Lalisang, 2017).

The most of the palm sugar production is still absorbed by the domestic market, meanwhile the demand from abroad has not been fulfilled because of limited production for now. The main obstacle for palm sugar products for export is the low quality of palm sugar produced and generally does not meet the required quality standards and in terms of cleanliness, shape, size, physical and chemical properties of the products produced are not uniform. The quality of palm sugar produced is influenced by several factors such as raw materials, processing methods, and post-production handling (Musita, 2019).

According to Kusumanto (2015), palm sugar industry will rise because of several things as follows:

1. Products from palm sugar are needed by the world market.
2. Products from palm sugar have a comparative value, because it has a peculiarity that is difficult to obtain from others.
3. High sugar productivity can be a very profitable investment option.
4. With a touch of technology that is relatively simple already provides value added that is very promising.
5. There are increasingly greater opportunities due to world trends that lead to commodities that can support the preservation of natural resources and environmentally friendly.
6. Can be developed on lands with broad climate conditions adaptation.
7. Absorption of large direct labour, making palm sugar commodity an option for creating new jobs and reducing unemployment in various regions.

Regarding to Evalia (2015), palm sugar industry is a livelihood residents in Lareh Sago Halaban District which has been done for generations. The potential of the Lima Puluh Kota Regency, especially Lareh Sago Halaban District as a sugar producer will always be open. This is due to several aspects of the palm sugar crop business that are quite supportive. These aspects include:

- 1) the need for palm sugar is increasing,
- 2) there is a tendency for people to use natural ingredients in industrial products,
- 3) there are still many farmers in production centers that rely on livelihoods on palm sugar,
- 4) there is already an international organic food certificate for the production of palm sugar.

Jorong Talaweh Nagari Labuah Gunuang where is located in Lareh Sago Halaban is the place that has Aren as their needs in daily. Around 65% people are farmers of aren. In 2012 the idea of a farmer group leader came up from his discomfort with the production of palm sugar that produced palm wine and found ideas to develop products that could be produced from palm sugar which were not just block palm sugar. The development of palm sugar production then developed until in 2018 a grant was provided from the Lima Puluh Kota district center in the form of a place for palm sugar production. In 2019 the palm sugar farmers group received a donation in the form of a machine but the number of machines was not yet sufficient so the process of making the palm products was only produced manually. Due to the pandemic situation, some machines which will actually come in 2020 are delayed which causes the process of palm sugar products making to be produced manually. The group of palm industry that is in *Jorong Talaweh Nagari Labuah Gunuang* where is located in Lareh Sago Halaban named Mutiara. They have 20 members in a group.



Figure 1.4 Palm Industry Building in Lareh Sago Halaban

Raw material which will be material to process the products can be got from their own garden of farmers. They have field its self so there won't be supplier for raw material that needed to make products. There are 5 products they produce which are:

- a) Block palm sugar (*gula cetak*), the product which is cooked for around 4-5 hours then it's printed into mold. Block palm sugar has pH at least is 4, and sugar content at least is 11.
- b) Cubes palm sugar (*gula petak*), this product is same like block palm sugar and the different is he shape of product. Cubes palm sugar is square and it's 12 pieces inside a box. Cubes palm sugar has pH at least is 4, and sugar content at least is 11.
- c) Palm syrup (*gula cair*), the product which is boiled until around 4 hours and it's like syrup. Block palm sugar has pH at least is 4-6, and sugar content at least is 10.
- d) Fresh palm water (aren sap ultra heat treated), this product is same like palm syrup but the difference is boiling process for only an hour and the color is white. Block palm sugar has pH at least is 5, and sugar content at least is 11.
- e) Brown sugar (*gula semut*), the product which is similar like cane sugar (sugar usually people use at home), it needs around 10 hours for boiling it. Block palm sugar has pH at least is 6, and sugar content at least is 13.

Each product is served by different types of packaging. The products which are produced by palm industry in Lareh Sago Halaban can be seen in **Figure 1.5** below.



Figure 1.5 Palm Sugar Products in Lareh Sago Halaban

As a sugar producer, the position of competitiveness of Lareh Sago Halaban District is still weak and the development of sugar palm agro-industry is still difficult to develop. This, is still hampered by various challenges and problems such as low productivity, the existence of competition with sugar products derived from sugar cane, and the presence of palm sugar products from other regions such as Java. The tendency of increasing market demand for agro-industrial products and the availability of sizable natural resources has given hope that this agro-industry is quite prospective and has the potential to create greater value added to every actor involved in the system (Evalia, 2015).

Every company must have the desire to make a profit from the products produced by several factors in producing the product. Value chain is a perspective in which a business is seen as a chain of activities that converts inputs into valuable outputs for customers. Value for customers comes from three basic sources: activities that differentiate products, activities that reduce product costs,

and activities that can immediately meet customer needs (Kusumawati, 2013:25). In achieving an analysis of the value chain, the need for value added system as a benchmark for the progress of a company in producing its products.

1.2 Problem Formulation

Based on the background description, the formulations of the problem in *Jorong Talaweh Nagari Labuah Gunuang* where is located in Lareh Sago Halaban District are:

1. What is the existing palm industry supply chain
2. What is the value added of palm sugar derivative products.

1.3 Research Objectives

The purposes of this research in *Jorong Talaweh Nagari Labuah Gunuang* where is located in Lareh Sago Halaban District are as follows:

1. To analyse the value chain of Palm Industry.
2. To find out which product provides the highest value added.

1.4 Research Scopes

The scopes in this research are as follows:

1. The study case is Palm Industry in *Jorong Talaweh, Nagari Labuah Gunuang*.
2. The products will be discussed are palm syrup (*gula cair*), fresh palm water (aren sap ultra heat treated), block palm sugar (*gula cetak*), cubes palm sugar (*gula petak*), and brown sugar (*gula semut*).

1.5 Outline of Report

This part contains of the systematic writing of the final project report which are as follows:

CHAPTER 1 INTRODUCTION

This chapter explains the background of the research, the problem formulation, the objectives of the research, scope of study and outline of report of the final project report.

CHAPTER II LITERATURE REVIEW

This chapter contains theories relating to problems that will be discussed and support in solving problems, such as value chains and value added.

CHAPTER III RESEARCH METHODOLOGY

This chapter contains the steps or stages of research carried out from the beginning to the end of the research process.

CHAPTER IV DATA COLLECTION AND PROCESSING

This chapter consists of the data collection and data processing used for the research.

CHAPTER V DISCUSSION

This chapter contains a description of the data obtained. Data obtained in this study through interviews and direct observation of spaciousness. Then the data is processed data to get the results to be achieved from the research objectives. Then is done by doing discussion that is carried out to analyse the data that has been processed.

CHAPTER VI CONCLUSION

This chapter contains the conclusions of the research and the suggestions to the further study.

