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Manufacturing of Crystal Palm Sugar and Digital Product Marketing in Lubuk Bendahara Timur Village

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Abstract

Palm sugar agro-industry in Rokan Hulu Regency has obstacles in its development, namely technological capabilities, and limited supporting infrastructure for agro-industry, marketing and distribution that are less developed. The purpose of this service is to design a tool to make crystal sugar so that it can convert solid palm sugar which is usually produced by the community so that the price of palm sugar is higher than ordinary solid palm sugar and assist in digital marketing. This community service method is carried out in several stages, namely: observation, problem identification, problem formulation and finding the best solution. Through this service program, this service, the University of Riau implementation team has succeeded in designing and manufacturing palm sugar crystallization tools, socializing the use of the tool, counseling about digital marketing, and counseling efforts to change people's mindsets in the behavior of using sap water as an ingredient for making palm sugar.

Keywords: *Agroindustri, Palm Sugar, Lubuk Bendahara Timur*

A. INTRODUCTION

Plantation commodities are still one of the sources of non-oil and gas foreign exchange in Indonesia. One of the agricultural sub-sectors which is quite important in national development is the plantation sub-sector (1). The agro-industrial products that have the potential to be developed is palm sugar (*Arenga pinnata*). Palm sugar is a processed product of sap derived from palm plants that grow in areas with relatively high rainfall, such as and evenly distributed throughout the year, such as in Riau Province (2)

Palm sugar has been an important source of livelihood for farmers in its production centers. One of the palm sugar production centers in Riau Province is in Rokan Hulu Regency, which is precisely in Lubuk Bendahara Timur Village, Rokan IV Koto District. Sugar palm is one of the plantation commodities that is an economic choice for people in Rokan Hulu Regency. Palm production in 2016 in Rokan IV Koto Samo District was 4.63 tons, Rokan IV Koto District 4.95 tons and Bangun Purba District 4.62 tons (3)

Palm trees have long been known by the villagers as forest trees that grow naturally and live among many types of forest trees. Sugar palm does not require intensive maintenance efforts and is rarely affected by pests and diseases (4) Sugar palm is a plant that has many benefits. In addition to the nira water (*Arenga pinnata*) that can be taken, the sugar palm plant also has the advantage of preventing soil erosion because the roots of the palm tree are spread and deep enough to maintain environmental balance (5). Naturally, sugar palm can grow optimally in wet climates where rainfall is quite high. In such conditions, it will provide opportunities for
erosion or landslides (6).

Sugar palm plants begin to produce sap at the age of 5-12 years. The female flower bunches will produce sugar palm fruit which can be processed into kolang kaling (*Arenga pinnata*). while the male flower

bunches are tapped and the juice is taken. Each palm tree can produce 3-4 bunches of male flowers, and each flower bunch can produce about 300-400 liters of sap per flower season (3-4 months). So for each palm tree can be produced 900-1,600 liters of sap per year. Every 1 liter of fresh palm sap can be processed into about 135-272 kg of palm sugar per year (7).

Figure 1. Palm Tree (Personal Documentation)

The people of Lubuk Bendahara Timur Village mostly work as farm labourers with a total population of 1,811 residents with 882 men and 929 women. Lubuk Bendahara Timur Village has an area of 4,774.75 Ha with a flat and hilly shape. The produce of palm sugar in this village is still traditional, by collecting water from the palm trunks around the settlement in a specially made container from bamboo, in the morning after the fresh sap is collected in the container, then it is heated in a frying pan on a wood fire and printed. As stated by Mr Yamin, the main problem faced is the lack of knowledge and skills of the community in producing palm sugar. For this reason, it is necessary to transfer appropriate technology to the community in palm sugar to be more productive by using crystallization tools to produce better products and education in the field of marketing so that digital can market village products more broadly.

B. IMPLEMENTATION AND METHODS

The implementation of the service program begins with linear communication that only involves palm sugar farmers and other related parties. The next joint interaction communication was carried out with the village and 20 village farmers. Next, identification with the service and partners is carried out to resolve the problem. Implementation of the program is carried out for six months

This community service activity method is carried out in 4 stages: observation, problem identification, problem formulation and finding the best solution. The data used in this study are primary data and secondary data. Primary data were obtained from direct observations, interviews and group discussions with various groups in Lubuk Bendahara Timur Village. Secondary data is obtained from various sources such as the Badan Pusat Statistik (BPS), the agency in charge of plantations, both at the district and national levels.

C. RESULT AND DISCUSSION

1. Social and economic potential of the population

The Riau University community team tried to solve the unresolved problems in the field of agro-industry development in the Lubuk Bendahara Timur Village community. According to a survey that was conducted at the beginning of the arrival of the service team in Lubuk Bendahara Timur Village, it was found that the sap produced from palm trees was mostly sold to palm wine collectors. The sale is based on the selling value of sap to palm wine collectors, which is considered more profitable than selling it to palm sugar producers. However, from the villagers themselves, the sale of sap to palm wine collectors is considered disturbing because more and more people are getting drunk. This makes the villagers fear the increase in the value of crime in the village itself.

This integration work program is divided into three activities: manufacturing, packaging, and counselling. In the process of producing crystal sugar, several processes are carried out, namely sifting sugar into smaller sizes, heating (reducing the water content of sugar), cooling and forming into crystal sugar. The

experiment using 1 kilogram of palm sugar, produced 750 grams of palm sugar. After the production of palm sugar, palm sugar is packaged in plastic wrap, each weighing 250 grams.

Some of the problems faced by farmers, especially palm sugar farmers, are the high water content in palm sugar and it is necessary to modify the form of palm sugar into powdered palm sugar so that it is more attractive and has a more expensive price than ordinary palm sugar.

Ordinary palm sugar sold in the market around the village can be seen in Figure 1. The solutions provided by the Riau University service team with partners to the people of Lubuk Bendahara Timur Village include designing crystal palm sugar-making tools, designing ovens and sieving machines and also conducting socialization on how to use these tools and coupled with counselling about digital marketing techniques. The program of activities can provide solutions to community development and empowerment in Lubuk Bendahara Timur Village.

Figure 1. Round Palm Sugar (Personal documentation)

2. Product added value in terms of science and technology

During the extension, the main target of the extension was Mr Yamin as a villager who owns a garden for sugar palms. In this counseling we explain the process of producing palm sugar from start to finish manually. The solutions provided by the Riau University service team with partners to the people of Lubuk Bendahara Timur Village include designing crystal palm sugar making tools, designing ovens and sieving machines and also conducting socialization on how to use these tools and coupled with counseling about digital marketing techniques. The sieving machine, oven and crystallizer can be seen in Figure 2.

Figure 2. Palm Sugar Crystallization Tool (Personal documentation)

Next, we design product packaging made of crystal palm sugar which can be seen in Figure 3. In this counselling we also hope that Mr. Yamin does not need to be afraid to look for consumers because we also explain about the use of e-commerce for selling the sugar. We also tell how to open an e-commerce or online store to make it easier for Mr. Yamin to sell sugar palm in the future. A digital account for promotion has been completed using the Instagram platform and also made location markers on google maps so that it can make it easier for prospective buyers to directly see the palm garden or the process of making crystal palm sugar. In this program, the establishment of Luberti Jaya BUMDes is encouraged to manage this crystal sugar production business so that it can continue and be sustainable.

Figure 3. Palm Sugar Product (Personal documentation)

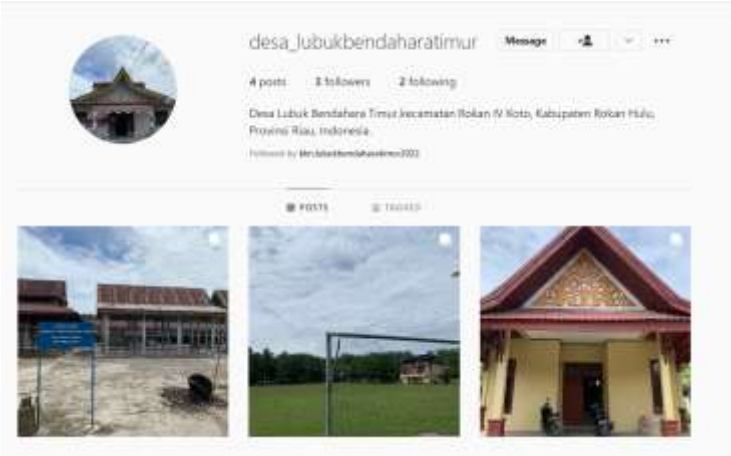

Figure 4. Instagram Account Lubuk Bendahara Timur Village (Personal documentation)

D. CONCLUSION

The team from the University of Riau, assisted by partners, have completed a service program in the form of counselling on the manufacture of crystal palm sugar and packaging and regarding digital marketing. Crystal palm sugar has the potential to be used as a Luberti Jaya BUMDes business unit so that it can increase the welfare of the community and through this service it can make people aware of preferring palm sugar in the form of crystals rather than being sold as palm wine.

Suggestion

In its future development, the production of crystal palm sugar is expected to cooperate with BUMDes Luberti Jaya so that farmers can also access capital well and can do wider product marketing.

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