

Increasing the Production of *Opak Semprong* with Appropriate Technology to Break the International Market

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Abstract. Processing of cassava for the manufacture of *opak semprong* products in Melati Kebun Village, Pegajahan District, Serdang Bedagai Regency is in dire need of appropriate technology because the equipment used still has limitations by using human labor, so the process is less efficient, less productive and marketing is limited. In connection with that, in order to help the community managing Small and Medium Enterprises (SMEs), the Cassava *Opak Semprong* Business PKM was carried out and the Design of Pressing Machines and Spinner Machines was carried out to increase the production of various opaque products in the village. The approach method used is the method of education, production training, machine design/assistance, business management training and marketing. At the end of the PKM Program, partners are able to apply TTG in the opaque production process, carry out bookkeeping, recording and financial reporting in accordance with accounting standards, conduct e-commerce (business transactions via electronic/internet networks), digitally (online) marketing on social media, so that the small and medium enterprises have increased production and get additional net profit and marketing to Malaysia.

Keywords: Pressing Machine, Grinding Machine, Spinner, Management, Marketing

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1. Introduction

Small and Medium Enterprises have the potential to be able to create strategic development impacts in the economy, especially in terms of increasing added value, aspects of equal distribution of employment opportunities and employment in overcoming unemployment, poverty and urbanization [1]. Small industry has a strategic role in supporting the national economy, namely in the effort to equalize and spread the industry as an effort to alleviate poverty, play a role in supporting the growth of agro-industry that processes agricultural products into products that have higher added value [2]. In Indonesia, Small and Medium Enterprises are found in all sectors of the economy and make a large contribution to employment and income opportunities. It is undeniable that Small and Medium Enterprises are important for national economic development [3].

The policy of the Serdang Bedagai Regency Government to include cassava as one of the regional superiors is the right step considering that the area is a cassava producing area. Various types of cassava products are made in this area so that small industries have sprung up such as the *opak semprong* industry, *opak* plot butter, opaque cassava coins, sliced cassava noodles, cassava chips, yeye cassava noodles, *opak* bowls, opaque vegetables, and kelanting.



Fig. 1. Cassava Commodity in Pegajahan District.

The use of appropriate technology in the cassava processing industry, especially opaque semprong which is a characteristic in Pegajahan District can increase the competitiveness of the regional superior competency-based industry, and be able to develop and improve the quality of opaque semprong products which have an impact on increasing people's income. *Opak* is a dry food made from tapioca flour, where tapioca is made from cassava. *Opak* crackers are snacks that are favored by both young and old people because of their good taste, cheap price, and easy way of making. The advantage of opaque crackers compared to other crackers is that opaque crackers are made directly from cassava so that the fiber content is still high, while other raw materials do not contain fiber.

Opak semprong small and medium business partners, which are one of the mainstay industries and most of them are located in industrial centers in Pegajahan District, handle processed products from cassava raw materials which have a variety of products. The main problem experienced by *Opak Semprong's* small and medium business partners is in the processing of cassava for the manufacture of opaque because of limited equipment. Appropriate technology for pressing machines for production is still very limited, as is the case with getuk potato grinding machines, spinner machines, cooking stoves and drying machines.



Fig. 2. Cassava Grinding Machine Condition.



Fig. 3. Opaque Pressing Machine Condition.



Fig. 4. Making *Opak Semprong* and Drying.

In addition, financial management and marketing management have not been implemented in accordance with management functions which include planning, organizing, directing and controlling. The limitations of digital (online) marketing capabilities on social media and communication prevent buyers who have already purchased from being followed up.

Therefore, in order to overcome the problems experienced by *Opak Semprong* small and medium business partners, the Cassava *Opak Semprong* Business PKM was carried out to increase the production of various *Opak* products and incomes in Melati Kebun Village, Pegajahan District, Serdang Bedagai Regency, North Sumatra.

2. Method

The Community Partnership Program activities are carried out using the lecture method, demonstration method, machine design method, practical training method, business management training method, mentoring and empowerment of human resources. The stages of implementing the Community Partnership Program activities and their approach methods are as follows:

- a. Getuk milling machine design and construction methods and assistance. The general purpose of this design is to design a potato grinder machine for making getuk with a screw cylinder with a capacity of 25kg/hour with acceptable results as planned. The cassava grinding machine to make getuk is a machine used by humans to help ease the work in the field of yam milling, especially in the cassava agricultural sector.
- b. Design and build opaque presses/printers. The working principle of the opaque dough press is an electric motor connected to the connecting shaft that moves the rotation and then rotates the shaft that presses the cassava opaque dough, so that it becomes flat. The thickness of the dough when flattened can be adjusted by turning the pressure regulating shaft so that the distance between the flattening shafts will become tighter and the dimensions of the dough will become thinner.
- c. Mentoring methods and machine application training methods
- d. Submission of machines/equipment and assistance in the use of machines by partners..
- e. Learning about sanitation and hygiene and training. Product hygiene is very important during the processing, so as not to reduce product quality.
- f. Introducing digital (online) marketing methods through the marketplace on Facebook/Instagram and introducing startup application partners in the trade sector, so that partners can do e-commerce (business transactions via electronic networks/internet).
- g. Helping partners to have seller accounts in startup applications and manage those accounts.
- h. Train partners to market their products and transact securely through selected startups.

3. Result and Discussion

The results of the Community Partnership Program activities carried out after the use of press machines,

spinner machines, furnaces with a capacity of 800 kg and tables and other supporting equipment led to an increase in the production of opaque semprong from 500 kg/day to 700 kg/day with better quality than before and meet the requirements standard. Production activities require additional workers from 12 people to 14 people with a duration of work before receiving assistance for 7 hours / day to 5 hours / day, so overall it provides an additional net profit of IDR 95,000 / day with more marketing as shown in Table 1:

Table 1. Production Results Report from the Manager.

Laporan Mesin Lama	Lapora Mesin Baru
1. Produksi Perhari maksimum 500 kg	1. Produksi Perhari maksimum 700 kg
2. Harga ubi 2100/kg 500 kg x 2100 = Rp 1.050.000	2. Harga ubi 2100/kg 700 kg x 2100 = Rp 1.470.000
3. Hasil Produksi Siap Jual dari 500 kg bahan baku menjadi 170 kg opak. Harga jual 170 kg x Rp. 10.000 = Rp. 1.700.000	3. Hasil Produksi Siap Jual dari 700 kg bahan baku menjadi 230 kg opak. Harga jual 230 kg x 10.000 = Rp. 2.300.000
4. Laba Bersih Sebelum Biaya Operasional Rp 1.700.000 – Rp 1.050.000 = Rp 650.000	4. Laba Bersih Sebelum Biaya Operasional Rp. 2.300.000 – Rp.1.470.000 = 830.000
5. Tenaga Kerja 12 Orang Jam Kerja (9.00 – 16.00) = 7 jam kerja	5. Tenaga Kerja 14 Orang Jam Kerja (9.00 – 14.00) = 5 jam kerja
6. Biaya Operasional - Upah Kupas Ubi Rp.100.000 - Biaya Mesin (Solar) = Rp.35.000 - Upah Pekerja = Rp.300.000 - Lain-lain = Rp. 50.000	6. Biaya Operasional - Upah Kupas Ubi Rp.150.000 - Biaya Mesin (Solar) = Rp 30.000 - Upah Pekerja = Rp.400.000 - Lain-lain = Rp. 50.000
7. Jumlah Biaya Operasional = Rp. 485.000	7. Jumlah Biaya Operasional = Rp. 630.000
8. Laba Bersih Setelah Biaya Operasional Rp 650.000 – Rp.485.000 = Rp.165.000	8. Laba Bersih Setelah Biaya Operasional Rp 830.000 – Rp 570.000 = Rp.260.000

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In addition, there was an increase in the ability of human resources in the use of appropriate technology, financial management and marketing after attending the training. Partners have been able to manage marketing digitally (online) on social media and do marketing at startups and conduct e-commerce transactions.

4. Conclusion

The Community Partnership Program activities carried out have caused the following: 1) Increased production of opaque semprong that meets industry standards. 2) Increasing the number of workers with less duration of work. 3) Daily addition of net profit. 4) The addition of the capacity of human resources involved in *Opak semprong* business activities.

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