

## THE EFFORTS TO INCREASE THE USE VALUE OF CORN THROUGH EMPING CHIPS PROCESSING IN SIOPAT SOSOR VILLAGE, PANGURURAN SUB-DISTRICT, SAMOSIR DISTRICT

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### ABSTRACT

Corn is an agricultural commodity that is widely grown by farmers. The abundant corn harvest during the main season has caused the selling price of corn to decline. These conditions prompted the Community Service team to implement the PKM program for processing corn emping chips for partners. The partners of this activity are 1) Mekar Jaya Farmers and Nainggolan Farmers are located in Siopat Sosor Village, Pangururan Sub-District, Samosir District. The objectives of this activity are 1) Designing a corn emping chips machine; 2) to improve product quality partners need to make more attractive packaging; 3) Assistance in production and marketing processes. This PKM activity begins with providing knowledge, technology and business management as well as online marketing. Corn farmers can take advantage of their agricultural products by processing corn emping chips. Corn emping chips are made from boiled corn which is flaked using a corn flakes machine with a capacity of 50 kg / hour, then dried in the sun and when it's dry it is ready to be fried and then enjoyed. Corn emping chips are one of the most valuable corn processed products. Corn emping chips are a food diversification product that can support the development of rural agro-industries and can increase the income of corn farmer families.

**Key Words: Emping Chips, Corn, Processing, Samosir District**

### INTRODUCTION

#### A. Situation Analysis

One of the local raw materials that can be used for various preparations to strengthen food security is corn. Corn is a food source of energy, a source of sugar or carbohydrates, and contains high enough protein and fat. Utilization of corn increases with the population. Corn is not only used for feed but also as a food ingredient such as corn starch, corn oil, corn rice, corn flour, corn chips and other processed foods (Triwitono, 2017).

Diversification of corn products through processing corn into various processed products will increase the economic value and use value of corn as a non-rice food ingredient and also increase family income. In the context of realizing food security, one of the efforts that can be done is to re-implement (reactivate) food diversification towards diverse, nutritionally balanced and safe food production and consumption, and most importantly based on local resources. Food diversification will have a great value if it is able to explore, develop and optimize the use of existing local food sources. In addition to the raw material for flour, corn can be made into a variety of local foods that are no less flavor and nutritious than wheat (Sulistyaningsih, Lestari and Kumalasanti. 2019). Food needs always follow population trends and are influenced by increases in per capita income and changes in consumption patterns. This shows an indication that food diversification is needed to support the establishment of food self-sufficiency. From this condition, two things must be fulfilled, namely the provision of foodstuffs and diversification of food processing. One of the sources of food substitute for rice which has good potential is corn (Awami, Masyhuri and Waluyati, 2013).

Based on the results of interviews with corn farmer partners in Pangururan, during the main harvest their corn production doubled, so they needed special handlers for that. In Figure 1, it can be seen that the partners are drying their harvested shelled corn. Based on this, it is necessary to assist partners in corn processing so as to increase family income.



Figure 1. Partners are drying their harvested shelled corn

The food made from corn is very diverse. One of them is corn emping chips. These corn emping chips are made from boiled corn which is then flaked, then dried in the sun when it is dry ready to be fried and then enjoyed. These corn emping chips can be used as a business. The corn emping chip business opportunity is still very high to run. This corn emping chips business is very easy to run with raw materials for making corn emping chips. This snack is already on the market but the demand is so high that the demand for corn emping chips is always high. This snack is very unique because of the flat shape of the corn which makes it easier for the chewing process because it is more tender and crunchy. Everyone can eat corn chips easily. Corn emping chip snacks are suitable for consumption while relaxing or as a treat for guests (Masniah and Syamsuddin, 2013).

So, the corn emping chip snack business is the right choice. This business is very easy and simple because of the simple ingredients and manufacture of corn emping chips. The capital to run a corn emping chips business is not too big, so you can easily run it. The material for making corn emping chips is corn. To produce quality corn chips, the quality corn is needed. In addition to corn, we also needed seasoning such as garlic and salt. Limestone which is useful for the softening process of corn so that it is easy to press. And cooking oil for frying corn emping chips that have been dried in the sun. This frying process requires large amounts of oil so that the production process is faster (Djali, Kayaputri, and Kurniati, 2018).

Equipment to facilitate the production process of corn chips, such as chips pressing machines, pans, cormorants, drying tools, basins, frying pans, stoves and packaging machines. This equipment will simplify the process of making corn chips. Making corn chips starts from soaking, boiling, washing, drying, frying and so on. This activity certainly requires quality equipment with a large capacity. Facilities and infrastructure are important in supporting business development (Meyanta, Suswatiningsih and Manumono, 018). Therefore, the facilities and infrastructure in doing business must be supportive. Such as the facilities in product marketing or the facilities in the product manufacturing process. These constraints make their production limited. Based on this, in this activity it is

necessary to provide assistance to partners of corn emping chips, provide training in making attractive packaging and good business management to make it easier for partners to produce corn emping chips which can increase farmers' income.

## **B. Partner Problems**

Based on the author's observations, partner problems are production, business management and marketing problems. The following is an explanation of production, management and marketing problems:

### **1. Partner Production**

Corn is one of the commodities with the potential to be processed into food and industrial raw materials. The handling of corn after harvest needs attention. One of the efforts to increase the added value of corn commodities vertically is to develop rural agro-industries. Efforts are being made, namely processing corn into corn chips. Efforts to increase the usability of corn can be increased by diversifying the processing of food products from corn. If seen from the partners' yields, every third of the month it reaches 1 ton. Partners have sold their corn to collectors with a price of Rp 2,000/ kg for shelled corn. To increase the selling price of corn, it is necessary to process the corn into corn chips. The corn emping chips business is still on a family business scale using fairly simple processing technology. The reason for housewives to pursue a corn processing business is to increase family income. The use of labor in the family dominates the workflow in each business unit. The corn processing business in Pangururan District, for one production process, can produce an average of 20 kilograms of chips, which come from shelled corn as raw material. In the production process, shelled corn is experiencing shrinkage. The average price of shelled corn is around Rp. 2,400 - Rp. 2,700 / kg. In addition to selling processed corn products directly to consumers, most of them sell to collectors from outside the village. The collecting traders come / collect the corn themselves every 2 - 3 days and they pay cash. The average selling price to collectors is around Rp. 15,000 /kilogram of corn chips. Based on the partner's condition, the partner's problem is the need for appropriate technology, namely the corn emping chip machine and the manufacture of chips so that production increases, using appropriate technology that is simple, cheap and easy to do.

### **2. Management**

If we look at the management conditions applied by partners, they still use simple management in a friendly manner, where administrative management which includes work arrangements, financing, production and human resources is still simple. For the management of this partner's business, everything is still in the hands of this business owner, both procurement of raw materials, production management, labor, and sales. Even though it adheres to family management, the system of division of labor is well organized, meaning that each worker already has duties and responsibilities for their respective jobs.

### **3. Marketing**

Partners do not understand and are not skilled in managing promotional techniques and product marketing more broadly. Partners do not know how to promote and market products properly. This problem is a priority because marketing is one of the keys to the success of a business.

## **SOLUTIONS AND OUTSIDE TARGETS**

### **A. Solutions Offered**

The Corn emping chips business requires the right business strategy; so many people like corn chips and it can increase the sales. The packaging and quality of the corn chips are one of the considerations for buyers. So the corn chips product must have good quality with attractive and unique packaging. Marketing of corn emping chips to various social media is needed. This corn chips business needs to know well about business analysis in order to know in detail about the needs and business income from this business opportunity. The corn chips business is very profitable and will get satisfactory results, especially if you are able to sell to the maximum every day. To solve partner problems, the solution offered is to design a corn flipper machine, make the packaging more attractive, provide training in management management, marketing management, and financial accounting. This solution is expected to be able to become the basis for business development in a larger direction, with a larger production capacity as initial capital to carry out broader marketing, to higher consumer levels. Followed by better business management skills. Seeing the problems faced by partners and the limitations of the implementing team, it is necessary to prioritize the problems that will be resolved through this activity. After discussing with partners by considering the ability of the implementation team, the priority issues to be resolved through this activity are:

- 1) Partners do not have a corn flask machine for the production process.
- 2) Making labels for more attractive packaging so that it is in line with market tastes.
- 3) The use of information technology as a product marketing medium.
- 4) Improved management system.

### **B. Output Target**

The output of this activity is:

1. Corn Emping Chips
2. Corn Emping Chips machine
3. A more attractive packaging for corn emping chips

### **C. The Design of corn flatters**

To make it easier for corn flatters partners, the following is the design of the corn flatters machine that will be given to partners and their specifications.

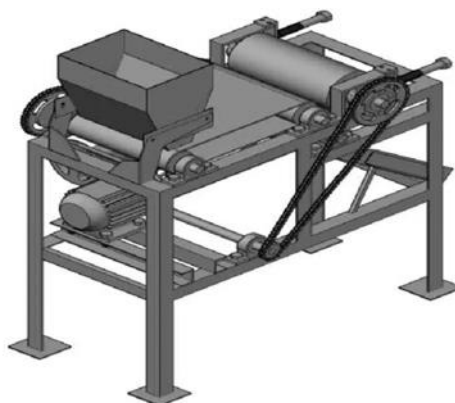


Figure 2. Design of a corn emping chips machine

Engine Specifications:

- Type: PMP-j50.
- Dimensions: 137x65x122 cm.
- Drive: 5.5 PK gasolines motor.
- Frame: U channel 5.
- Transmission: V belt, chain.
- Flat rollers: Mild steel / Iron 8 inch and 6 inch.
- Capacity: 50 kg / hour.

**METHOD OF IMPLEMENTATION**

**A. Stages of Activity Implementation**

In accordance with the problems faced by partners and the priority of implementing activities, the implementation method that will be carried out includes coaching, training, mentoring, structured consultations on various things that become obstacles in efforts to develop partner businesses. This PKM activity will be carried out in five stages as follows:

**1. Stage I (Extension / socialization)**

The implementation of activities begins with program socialization to partners regarding the scope of the program to be implemented, the timing of the activities, activity stages, mentoring, activity evaluation and monitoring. At the initial stage, partners will be given knowledge / insights about the business prospects to be developed, including how the production techniques, marketing and business management are. Extension will be carried out using lecture and discussion methods. This activity aims to be more convincing and solidify the knowledge, insight and enthusiasm of partners to develop businesses.

**2. Phase II (Production Engineering and Product Packaging Training)**

At this stage the partners will be trained to use the corn chip flakes machine to get corn chips. During the training, guidance and consultation activities will be carried out so that partners are truly capable and skilled at making quality products. Furthermore, partners are given training on how to package attractive products using labels and have their own characteristics.

**3. Stage III (Training on Product Marketing and Promotion Techniques)**

At this stage partners will be continuously trained and guided on how to promote and market the products produced. This activity is escorted until the partners succeed in marketing their products that can ensure the sustainability of their business, and also use information technology as a product marketing medium, namely online media.

**4. Stage IV (Counseling About Business Management)**

At this stage, partners will be provided with tips for managing a business. Activities are carried out through lectures and discussions so that the partners really master the concepts of good business management to ensure the existence and progress of their business.

**5. Stage V (Monitoring and Assistance)**

Assistance activities are carried out as needed and carried out at all stages of activity, starting from restructuring and structuring the production space, accelerating the production process with the help of a corn chip machine, technical use of corn flakes machines, training in simple business bookkeeping,

manufacturing product packaging. The activity implementation team will regularly monitor and provide assistance to ensure the sustainability of the business that will be developed by the partners. At this stage, the implementation team will also conduct an analysis of possible problems arising from the partners while running the business and seek solutions.

### **B. Partner Participation**

The success of this activity, of course, really depends on the active participation of the partners. The expected participation of partners in this activity is as follows:

1. Provide a special place for business
2. Providing raw materials for processing corn chips
3. Participating in all activities from outreach, counseling / training, use of corn chips machines and monitoring and mentoring activities
4. Highly committed to continuing and developing the business to be trained.

### **C. Program Evaluation**

Evaluation is carried out in an effort to maximize the results of activities according to predetermined targets. Evaluation is carried out on all forms of activity. If there are activities that produce results that are not optimal, then efforts are made to improve those activities.

### **D. Program Sustainability**

It is hoped that the sustainability of this program will continue well, partners are expected to be willing to consult later if they encounter problems in their business development, including their products. Production capacity is expected to be increased by at least 20%. The equipment assistance provided, such as a corn chip machine, is expected to be able to produce with a larger capacity so that the marketing is broader. Likewise, with good bookkeeping, partners can properly calculate their business position and business profit and loss

## **RESULTS AND DISCUSSION**

The implementation of this PKM is carried out by providing material (lectures) and the practice of making corn chips products. Providing material on corn chips processing technology includes material handling, sanitation hygiene, packaging, labeling, food certification, determining selling prices and product marketing strategies. The training participants get the material to be given. Material handling material is needed so that participants understand the importance of handling raw materials on the quality of the products produced. Flaked corn requires fast handling because the texture and high moisture content causes the growth of soaking, boiling and flaking using a corn flattening machine, and then drying it to dry it from mold and rot.

Packaging is concerned with selecting the type of packaging, packaging equipment in accordance with the type of packaging used. In this material, participants are given information about how to choose the type of packaging that is tailored to the product to be packaged, what equipment is needed and how to operate the equipment so that the resulting packaging can protect the product so that it has a longer shelf life. The labeling material is given so that participants

know what information requirements must be on the food label in accordance with the food labeling law.

The material for determining the selling price is given to the participants; this material is based on the products made by the participants. This is intended so that participants have an idea of how to determine the selling price of a product and can be applied to the manufacture of other products. In this material, participants are given the task of determining a product price, and then evaluated by the service team. Theory and practical application of marketing strategies and how to seize the market are provided as an effort to provide an overview and choose the most appropriate marketing method for corn chips both online and offline.

The presentation of the material was continued with the practice of processing jagun chips. The method of making corn starts with choosing good quality corn, after which the corn is cleaned by washing it. To remove the husk from corn, Mitra can boil the corn with lime (as much as 2-4% of the weight of the corn) for one hour. Then wash the boiled corn again thoroughly, and then soak the corn in clean water for one night. Then do the steaming for an hour, on the corn that has been soaked overnight. When the corn is ripe, Mitra, can start flattening it while the corn is still hot using a corn flattening machine.

To make it easier for partners to flatten corn chips, the unimed PKM team handed over the assistance of a corn flattening machine which could speed up the processing of corn chips. Corn pemipih machine has the ability to flatten corn quickly, the capacity is up to 50 kg / hour. In Figure 1, it can be seen that the Chief Executive hands over the corn chip flatters to the partners.



Figure 1. Handover of corn flakes machine to partners

For the last stage, the corn that has been flattened using the machine is ready to be dried in the sun. In Figure 2 you can see the wet corn chips using a corn flask machine.



Figure 2. Fried corn emping chips

Usually when the weather is good, the drying process takes approximately 1-2 days. However, if the weather is not friendly, it can take longer between 3-4 days. This product can be sold raw, or it can be marketed after frying. These chips can be added according to taste, for example savory, sweet and spicy. In Figure 3 you can see the fried corn emping chips.



Figure 3. Fried corn emping chips

Corn chips can be packaged raw or fried, and can be marketed immediately. The next activity is to provide packaging technology, because packaging also plays an important role in the progress of a business. Good packaging will determine the success of marketing a product. Partners are given business management training, with the aim of improving partner skills in implementing management in the fields of organization, production, finance, administration, product selling prices, consumer, and marketing techniques.

## CONCLUSIONS AND SUGGESTIONS

### 1. Conclusion

The corn sheller machine for making corn chips that has been provided has been able to increase the partner's production to 50 Kg / hour in a good form and after it is dry it is ready to be fried. So that it will have an impact on ready-to-sell (fried) production which increases 2-3 times. Training in business management, finance, and marketing has provided a change in perspective for partners who have only been used as a side business in their spare time. It is hoped that the corn chip business will become a business that is seriously pursued so that it will make their business bigger, and no longer a side business. as has been done by partners so far. Given the abundance of maize in the area, this corn chip household business is encouraged to develop and meet market demands and penetrate a wider market so that this business becomes one of the livelihoods of the local population. On the other hand, it is hoped that it will have an impact on local farmers who can cultivate it. Their yields become more valuable products because



they are processed products that have a higher selling price, so that local farmers' income increases, which in turn makes farmers' economies better.

## 2. Suggestions

After this activity is carried out well, what needs to be suggested is the LPPM so that it can foster partners so that partner businesses can increase.

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