

PKM Cultivation Development and Sweet Corn Milk Production Sulangai Village, Petang District, Badung Regency

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ARTICLE INFO

Keywords: Sweet Corn, Sweet
Corn Milk, Women Farmers
Group

Received : 23, October

Revised : 25, November

Accepted: 27, December

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ABSTRACT

Sulangai Village is an agricultural village and is developing so that the livelihood of the population is greatly influenced by the condition of a village. Community Partnership Empowerment (PKM) has the goal for partners: increasing knowledge and skills of partners in developing sweet corn cultivation while utilizing sweet corn products to increase their added value into sweet corn milk from the Women Farmers Community in order to increase the added value of production and income, which so far has only sold its sweet corn production but is currently also being attempted to increase its income through the sale of sweet corn milk. The touch of technology in cultivating sweet corn and sweet corn production which has not been implemented properly will provide high added value for partner groups and is useful in increasing agricultural yields and increasing the income of women farmers.

INTRODUCTION

Sulangai Village is an agricultural village and is developing so that the livelihood of the population is greatly influenced by the condition of a village. The population of Sulangai Village tends to increase every year while the area remains the same, so that population density continues to increase and will become large if not handled properly and quickly. The population has a very important influence on the growth and development of development in all fields so that the population is a human resource as one of the determining factors in development Sulangai Village has a total of 6,859 people divided into 3,479 males and 3,380 females. The birth rate in 2016 reached 58 people and the death rate was 53 people. The migration rate in 2016 was recorded, 47 people moved and 26 new arrivals. The livelihoods of the population are mostly farmers as many as 2,838 people, the rest are laborers, services, and private.

The main objective of establishing Women Farmers is to accelerate access to and application of technological information and the use of easy learning processes for women farmers and their families in real conditions in the field. It is hoped that women farmers will be able to solve the problems they face and help themselves to increase their productivity, income and welfare. The people of Sulangai Village, in supporting their lives, besides working in various fields, are also engaged in the agricultural, livestock and plantation sectors. In the agricultural sector, the commodities developed by farmers are rice, chili, shallots and also sweet corn. To increase the added value of sweet corn cultivation, its production is not only harvested in fresh form but also processed into ready-to-eat products that are processed into sweet corn milk.

Sweet corn cultivation is one way of management to obtain added value and profit through high productivity with other subsystems forming agribusiness. The agribusiness system is a series of activities involving input subsystems (upstream agroindustry), output subsystems (downstream agroindustry), processing subsystems (agro-industry), marketing of results and supporting subsystems. In addition to animal feed, corn also has great potential in the food industry as a raw material for the food and beverage industry. Agro-industry development will be able to increase production, agricultural product prices, agricultural income, and generate added value for agricultural products. Thus, agro-industry development cannot be separated from agribusiness development. One of the agricultural products that can be processed so as to increase the selling value of sweet corn production. Sweet corn plants are one of the plants that generate a lot of foreign exchange for the country and have a fairly high economic value which makes this plant potential to be developed. Data on the harvest area and production of sweet corn plants in Indonesia, namely in 2023 the harvest area of peeled corn is estimated to be 2.49 million hectares with the production of dry corn with a water content of 14 percent in 2023 amounting to 14.46 million tons. The harvest area of corn kernels in 2023 is estimated at 2.49 million hectares, a decrease of 0.28 million hectares or 10.03 percent compared to the harvest area in 2022 of 2.76 million hectares, and the production of dry corn kernels with a water content of 14 percent in 2023 is estimated at 14.46 million tons, a decrease of 2.07 million tons or 12.50 percent compared to 2022 which was

16.53 million tons. Meanwhile, the largest production of sweet corn in Bali Province and the center of sweet corn production in Bali is Gianyar Regency.

Handling of sweet corn cultivation is very necessary, but post-harvest handling and processing of sweet corn production also need to be done to increase the added value of products and the community of Sulangai village, Badung district. Cultivation, post-harvest handling and processing of sweet corn aim to provide added value to products and increase community income in order to achieve the welfare of farmers and their families. The benefits of sweet corn milk are to increase body health and increase energy. Sweet corn milk contains a number of important nutrients such as carbohydrates, fiber, protein, vitamins, and minerals. Sweet corn milk also contains a source of energy, the carbohydrate content in sweet corn milk can provide the energy needed for daily activities. The benefits of sweet corn milk are also to support digestion: The fiber content in sweet corn milk can help improve digestion and prevent constipation. Contains antioxidants: Sweet corn contains antioxidants such as lutein and zeaxanthin which can help protect the body from damage caused by free radicals. Healthy Heart: Several studies have shown that sweet corn contains compounds that can help maintain heart health. Contains Vitamins and Minerals: Sweet corn milk contains important vitamins and minerals such as vitamin B, vitamin C, iron, magnesium, and potassium.

Sweet corn contains several vitamins
Vitamin A: Sweet corn is rich in beta-carotene, which the body can convert into vitamin A which is important for eye health and the immune system. Vitamin C: The vitamin C in sweet corn helps boost the immune system and fights free radicals. Vitamin B: There are several types of B vitamins in sweet corn, such as thiamine, riboflavin, and niacin, which are important for energy metabolism. Minerals: Sweet corn contains minerals such as potassium, magnesium, and iron which are important for heart health, muscle health, and blood formation. Sweet corn milk can be a good alternative for those who are lactose intolerant or looking for variety in their daily beverages. However, as with any food or drink, it should be consumed wisely as part of a balanced diet and individuals with corn allergies should be cautious or avoid consuming sweet corn milk.

The development strategy in Sulangai Village is a combination of equity and sustainable growth through the development of women's farmer groups by implementing distribution and marketing methods regulated in the Village-Owned Enterprises (BUMDES) group of Sulangai Village. This is done to achieve success in the development of Sulangai Village in creating an advanced, independent, prosperous society based on the initiative of the community itself. The condition of natural resources in Sulangai Village, is very supportive of agricultural businesses including sweet corn. The availability of human resources is a problem in supporting existing local potential, therefore it needs to be improved so that it can help the success of the farmer family empowerment program. Limitations in achieving the success of agricultural businesses and processing of harvested products are cultivation and further processing of the product itself.

In relation to the increase in added value and increasing community income from sweet corn products, on the other hand, there are obstacles faced by the women's farmer group, so we hereby intend to submit a proposal to fulfill the needs for the cultivation and processing of sweet corn products into milk in Sulangai Village. The implementation of the Community Partnership Program (PKM) will partner with 1 (one) group of women farmers who have a strong will to progress and manage their business well. This program will be directed at efforts to increase the cultivation of sweet corn plants and the processing of sweet corn products into sweet corn milk which has added value/business with product packaging and labeling that previously did not receive attention and had never been done.

The members of the women's farmer group mostly carry out farming activities for rice, vegetables, horticultural and plantation crops, while sweet corn plants do not seem to be well developed even though they have quite promising added value. From these sweet corn-based activities and businesses, it is hoped that they can help families increase their income. Cultivation of sweet corn plants and processing of products that were previously not utilized properly, are now expected to become new jobs that are better for filling time in their daily activities that are profitable. It is hoped that with the community service funded by the DPPM of Warmadewa University, the people of Sulangai Village in the Sulangai Village Women's Farmer Group will experience better changes, so that they can increase the added value of family income and these commodities in developing improvements in cultivation and processing of sweet corn products. The purpose of this activity for partners is: to increase knowledge and skills of partners in increasing sweet corn yields through good and correct cultivation and processing of the product by studying the processing of sweet corn milk. The touch of technology in the cultivation of sweet corn and its processing will provide high added value for the members of the women's farming group in Sulangai Village, and can increase farmers' income.

IMPLEMENTATION AND METHODS

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RESULTS AND DISCUSSION

As one of the universities that always carries out its Tridharma, Warmadewa University with its PKM program which is developed with community service activities will encourage academics to help the community, especially the Mekar Sari women's farming group in Sulangai village, Badung district.

From the problems faced by livestock farming groups, through the process of discussion, counseling, direct practice, and mentoring, several solutions that have been implemented and succeeded are:

1. Delivery of Material during Counseling

The community in Sulangai Village has been doing activities on agricultural land planting various kinds of maize plants according to the potential of their area and making sweet corn milk seriously. The potential owned by both natural resources and human resources needs to be improved in line with current technological developments. The Sekar Sari women's farmer group consisting of women farmers gathered themselves in an organization which is expected to be able to play a role in utilizing existing resources. Improving the ability of women farmer group members with technology transfer is done by providing counseling and practice on how to cultivate sweet corn plants and the process of making sweet corn milk properly and correctly so that the plants can grow well and the milk processing process runs well. The output achieved by partner groups and members is motivated to improve understanding and implement good and correct sweet corn plant cultivation and the process of producing anis corn milk. 100% of partner group members have carried out sweet corn plant cultivation and sweet corn milk production properly and correctly.

2. Processing process of sweet corn milk

Corn is one of the main food crops that is widely distributed in various parts of the world. The abundant availability of corn makes it a cheap and reliable raw material for various food products. Corn contains complex carbohydrates, fiber, and several vitamins and minerals such as vitamin C, thiamine, and folate. This certainly has the potential as a raw material to be developed into nutritious food and beverage products. The development of food processing technology has enabled a wider variety of products from corn, such as corn flour, corn syrup, fermented drinks such as corn milk, and innovative snacks. The demand for healthy, organic, and plant-based food products is increasing. Corn as a raw material can be processed into products that meet consumer demand for a healthy and sustainable lifestyle. Corn products are often a more affordable alternative to other food products. Corn can be an attractive choice to be developed into various daily consumption products. One of the innovative products made from corn is corn milk. Corn milk production is growing due to increasing awareness of health and alternative plant-based products. Corn milk is a source of nutrition rich in vitamins, minerals, and fiber. The production process involves grinding corn kernels which are then fermented and filtered to produce a low-fat, lactose-free beverage suitable for individuals who are intolerant to animal dairy products. Increasing consumer interest in healthy lifestyles and plant-based diets is also supporting the growth of the corn milk market.

The tools and materials used are: Pan, measuring cup, tablespoon, stove, blender, scale, spatula, knife, strainer, sweet corn, sugar, salt, water, ginger and pandan. The work procedure is as follows: 1. Peel and wash the corn until clean. 2. Separate the corn contents from the corn cobs 3. Next, weigh 1 kg of corn, then puree it with 7 liters of water. 4. Strain the blended results using a strainer to separate the pulp. 5. Blend again until all the corn juice is dissolved. 6. Add 700 grams of sugar and 1 1/2 tablespoons of salt. 7. Also add pandan and ginger to taste. Don't forget to correct the taste. 8. Stir slowly until small bubbles appear then turn off the heat. 9. Wait until it cools, then put it in a bottle. 10. Corn milk products are ready to be served and marketed. Corn milk has disadvantages such as low protein and fat content when compared to cow's milk or soy milk, some people can experience allergic reactions to corn or corn products such as corn milk, although this is not as common as cow's milk allergies and the fiber content in corn milk is usually lower compared to whole corn, due to the processing process.

3. Transfer of Sweet Corn Cultivation Technology and Sweet Corn Milk Process

Sweet corn cultivation is carried out in a place/land that is not too large. Limited ownership of business land means that business premises must be managed so that all production processes can be carried out properly if you want quality products, meet quantity and continuity. Technological developments have paved the way to utilize tools or materials for storing sweet corn milk processed materials properly, including by using tools and materials that are widely available on the market. Partner groups and members are 100% able to utilize sweet corn milk processing tools properly on processed products and are able to do it themselves so that they can increase the added value of sweet corn milk products.

4. Improving Group Management Skills

Farmer groups are farmer organizations that exist at the lowest level in society that must be managed well so that their existence continues. With human resources being the spearhead in the sustainability of the planned program, their management capabilities need to be improved. The ability of members is still lacking in managing groups in various activities that are carried out, it needs to be improved with technology transfer, strengthening partner institutions and structuring partner management so that livestock farmer group organizations run well, are efficient and effective. 90% of partner groups have been able to work together and be compact and foster their members and are transmitted to the surrounding community in running the organization they lead.

5. Assistance with Materials and Tools

Materials and tools in a business activity are very much needed to support the success of obtaining quality products, meeting the quantity and being continuously available. The development of technology makes farmers think in carrying out their activities efficiently and effectively which can be obtained from materials and tools available in the market. Currently, in the partner group, there is still a lack of materials and tools to obtain products that can compete with other products in the market. 100% of materials and tools have been given to partners to be used in the cultivation and processing of solid and liquid rabbit manure products that are quality and sustainable.



Figure.1 Sweet Corn Milk Making Process



Figure.2 Example of Ready-Made Sweet Corn Milk

CONCLUSIONS AND RECOMMENDATIONS

The Women Farmers Group “Merta Sari” Br. Sulangai Village, Abean District, in this PKM, has been able to adopt all the materials provided. This can be shown, among others:

1. Members of the partner group have demonstrated their seriousness in participating in counseling, interacting during counseling, practicing in the field, and providing assistance.
2. Members of the partner group are motivated to carry out more active activities to produce sweet corn and sweet corn milk.
3. The Women Farmers Group has received theory and practice on the production of maize and the quality of maize milk with proper packaging so that production can be increased with quality, quantity and continuity to meet market demand.
4. Groups and members can run the organization better.
5. Assistance with materials and tools will be able to support group activities to obtain quality, quantity and continuity of sweet corn milk products produced which will greatly support increasing agricultural production.
6. Increased income of farmer groups from sales of corn products and sweet corn milk produced.

Some things that We Suggest for Activities in the “Merta Sari” Women Farmers Group Are:

- a. In order for the production of sweet corn and sweet corn milk to run well, the head of the Women Farmers Group "Merta Sari" Br. Sulangai Village, Abian Semal District continues to motivate in the processing of sweet corn milk so that it is expected to provide a positive contribution to its members and the women farmers' groups around it.
- b. There is a need for assistance with materials and tools for sweet corn cultivation activities and the subsequent production of sweet corn into sweet corn milk products with greater production so that production capacity is greater and has better added value for the income of women farmer groups.

Some things that are recommended for sustainability are:

1. Women's farmer groups must continue to provide motivation so that the processing of sweet corn milk can provide a positive contribution to its members, women's farmer groups and the surrounding community.
2. The need for additional materials and tools to process sweet corn commodities into sweet corn milk to become a larger business so that the production capacity is greater.

ACKNOWLEDGMENT

The Author Team would like to express their gratitude to the Chancellor of Warmadewa University and the Director of the Directorate of Research and Community Service for all their assistance, the Apparatus and Community of Sulangai Village who gave them the opportunity to carry out community service activities, the Mekar Sari livestock farmer group who have diligently participated in this activity and the students who helped in this activity so that it ran smoothly.

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