

## Improving The Quality and Diversification of Processed Goat's Milk-Based Products in Ainuna Farm Dairy Milk

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### ABSTRACT

Ainuna Farm Dairy Milk (AFDM) is an integrated farm that was established in June 2021 in Pamijen Sokaraja Village, Banyumas, with the main product is goat milk. Goat milk production capacity is 10 liters per day which is marketed in a simple way around the village. Priority issues for this project include low-quality goat milk products, no nutritional value information, no halal label, and basic, not attractive packaging. Aside from that, freezers for raw materials and processed products, standard and more efficient cooking equipment for milk and dairy products, and improved packaging are still required. The goals of this project include obtaining marketable products of high quality in order to increase product competitiveness, structuring documents or financial records, and establishing online marketing networks. The methods used include: 1) counseling; 2) product diversification practices and packaging improvements; 3) business management assistance. Diversification of processed goat milk has been carried out, including making popsicles and goat milk ice cream with informative and attractive packaging (equipped with product specifications and nutrition facts) as well as halal registration. Assistance in preparing documents and financial records as well as adding online marketing networks. This project has the potential to raise the economic worth and quality of products, as well as partner earnings, resulting in more independent and wealthy partners.

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## INTRODUCTION

This research-based community service program's partners are economically productive communities (MSMEs/micro, small, and medium enterprises or UMKM), including Mr. Ahmad Nashir Tsalatsa, owner of Ainuna Farm Dairy Milk (AFDM). AFDM is an integrated farm with major product is goat's milk and its derivatives. Due to its continued operation since 2021 and its ability to produce, this partner has an economically productive characteristic. AFDM has ten breeding goats (dairy goats of the Saanen and Anglonubian breeds), considering that each goat may yield one liter of milk. Totally, every day AFDM produces ten liters of goat milk and the demand for their products constantly rises.

Animal husbandry and producing processed goat milk under the "Ainuna Farm Dairy Milk" trademark are the business ventures of Mr. Ahmad Nashir Tsalatsa. The owner launched this company on June 2021 under the brand "Ainuna," which is the name of one of his daughters, and it is still in operation today. RT 3 RW 4 Pamijen Village, Sokaraja District, Banyumas Regency is the address of the business. About five kilometers separate the area from the Jenderal Soedirman University campus.

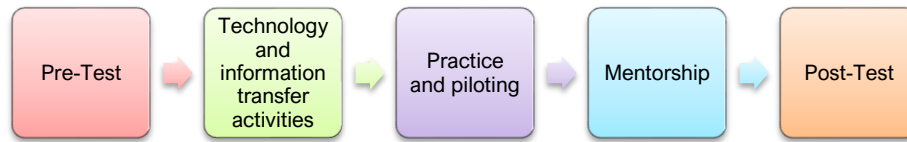
Goat milk products, including pasteurized milk, are sold by partners for IDR 12,500.00 each 250 ml bottle. The marketing area includes Pamijen Village and its surroundings with simple marketing methods. To help his business, Mr. Ahmad Nashir is assisted by 1 neighbor around his house to look after the goats and milk them, while for the processing of goat milk and its products, Mr. Ahmad Nashir is assisted by his wife and 1 worker. Pasteurised goat's milk had a limited shelf life. Microbes may emerge immediately after milk is pasteurised, believed to result from microbial contamination occurring between milking and packaging. Pasteurised milk is believed to undergo alterations in its chemical properties and microbiological characteristics during storage (Fa'iqin et al., 2019).

Partners are facing a challenge wherein a surplus of milk is produced, but the market cannot take up the extra goat milk. Quality control and product processing need to be varied in order to produce milk that are consistently high-quality and compliant with requirements. Goat milk is often stored in freezers with limited capacity. Diversification of processed goat milk products is essential to enhance their shelf life and commercial value (Handoyo et al., 2023; Utami et al., 2020). Furthermore, product name, trademark, net weight, ingredient composition, and production city on the label of a goat milk package is appropriate. Nonetheless, the label design lacks information on the product's nutritional value as well as the manufacturer's full address. The packaging remains conventional, with a simple sealer used for packing closure that occasionally does not attach properly. Nuraeni et al. (2022) observed that packaging labels significantly enhance product sales value.

According to the above description, the goals of community service activities include obtaining marketable products with quality in accordance with standards to boost product competitiveness; organizing financial documents or records and adding online marketing networks; creating attractive and educational labels that include product specifications and nutrition facts; registering halal by Badan Penyelenggara Jaminan Produk Halal; and providing support in the preparation of documents and financial records as well as the addition of online marketing networks.

## METHODS

UMKMs can pursue problem solving solutions by developing their knowledge and abilities. Discussion and lectures are good ways to find answers. This exercise employs methodologies for enhancing knowledge and skills as implemented by (Agustia et al., 2019; Wulandari et al., 2023). Three approaches, such as technology and information transfer activities, practice and piloting, and mentorship, are used to address partner concerns for the two key parts (production and management). Assessments from the pre-test and post-test are used for evaluation. The following are the phases of activity implementation:



**FIGURE 1.** Phases of Community Service Activities

## Location and Time

This project was carried out for 8 months at Ainuna Farm Dairy Milk (AFDM), Pamijen Village, Sokaraja District, Banyumas Regency.

## Methods of Activities

### 1. Transfer of Information and Technology

- a) Transmission of knowledge about the health benefits and nutritional value of goat's milk, as well as about common and favored preparations and the common odor of prengus and how to get rid of it
- b) Production and maintenance of processed goat milk goods in compliance with SOP (to ensure consistency in quality).
  - A demonstration of how to prepare spiced goat's milk, ice cream, and popsicles
  - Talks about technical aspects of product development, repair, and manufacturing
- c) Simple production and marketing of processed goat milk products
  - Basic courses on product marketing
  - A discussion on extending marketing domains
- d) Product economic analysis
  - A lecture about pricing and cost calculations for production
  - Discussion about the expenses associated with producing goods for marketing. Included in the costs are material costs (such as food ingredients, spices, and packaging), labor, equipment depreciation, and overhead costs (like as energy).
  - Discussion in order to determine profit or gain, selling prices are determined by multiplying food costs or production prices by variables 2 through 2.5.

### 2. Practice and Illustration

- a) Production of goat milk and its preparation in accordance with SOP
- b) Nutritional value assessment to enhance their informativeness. Labels for packaging should include information
- c) Packaging and labeling practices
- d) Administration Badan Penyelenggara Jaminan Produk Halal certification for halal
- e) Product economic analysis and group financial administration management techniques

### 3. Supporting role

- a) Continuous production of goat milk and its processed products
- b) Application of management for financial administration
- c) Product marketing (social media/ online)
- d) Performing financial administration and product economic analysis

## RESULTS AND DISCUSSIONS

The application of diversification technology to different goat milk-based food products can benefit Ainuna Farm Dairy Milk in Pamijen Sokaraja by providing them with information on processing methods for

different processed goat milk-based food products that are more appealing and in demand by customers. In their development efforts, the application of potentially useful food product manufacturing technology, the creation of preserved goods, and diversification based on goat milk must overcome several obstacles, including the relatively high cost, the conventional nature of the products up to this point, and the less appealing presentation. This explains why the community isn't as interested in using it.

Popsicles, goat milk ice cream, and spiced goat milk are among the products that can be produced with goat milk (Dewi, 2024; Hidayat et al., 2019). The products are branded with information and presented in an appealing manner, making them popular with customers and perhaps increasing in value. Because of their attractive packaging, these products will have a longer shelf life and more widespread commercial appeal. In order to ascertain the target partners' level of knowledge before to the counseling session, the activity started with a pre-test. At Ainuna Farm Dairy Milk, counseling was offered. Figure 1 shows the various actions.



**FIGURE 2.** Counseling at Ainuna Farm Dairy Milk (AFDM)

The following are some of the resources offered during the counseling:

1. The implementation of Good Manufacturing Practice (GMP) at Ainuna Farm Dairy Milk.

The food sector follows GMPs (excellent Manufacturing Practices) as a guide to manufacture high-quality food and beverages. This includes following excellent production procedures, implementing procedures, controlling, and supervising the production process's execution (Rudiyanto, 2016). This is so that the product that reaches customers is one that is safe to ingest. The primary goal of implementing Good Manufacturing Practices (GMP) in the field is to prevent product contamination during the production process. Good Food Production Methods, or CPMB, is the Indonesian term for GMP. The Decree of the Minister of Health of the Republic of Indonesia Number 23/MEN.KES/SK/I/1978, issued January 24, 1978, established the CPMB as a Guideline for Good Practices. Multiple examples of GMP implementation processes for UMKMs have been conducted in the Tahu Cibereum Bogor UMKMs (Nurul et al., 2023) and in Nozy Drinkt Gampong Lambaro Skep Banda Aceh (Darmawan & Maryati, 2023).

2. Establishing Standard Operating Procedures

In the production of processed foods, standard operating procedures are designed to yield goods that continuously fulfill the necessary requirements for product quality, such as the degree of durability or shelf life (Dewi et al., 2019; Wahongan et al., 2021). In order to achieve this goal, consideration must be given to the quality of raw materials, products in process, final products, as well as other factors like the processing area's level of cleanliness and sanitation and the tools and instruments used throughout the process, including packaging, both primary and secondary packaging (Agustia et al., 2021).

The degree of hygiene maintained by employees who directly handle the food preparation process is also taken into account. Conditions during processing, such as duration, temperature, and cooking

time, also affect the final product's quality. In order to provide workers who directly manage the food processing process with guidelines, all of the determining elements for the quality of the final product will be documented in the form of a process flow diagram (Cessy, 2023).

### 3. Preparing ice cream, popsicles, and spiced goat milk.

According to Yuliningtyas et al. (2019), spiced goat milk is a recent innovation that tries to mask the goat's unique fragrance and diversify its processing. Adding ginger and lemongrass spices is also known to boost the antioxidant content of the milk. The organoleptic value of goat's milk ice cream (colour, aroma, flavour, and texture) has been reported to be enhanced by the addition of telang flower extract (Riyansa & Syarif, 2023). Figures 2, 3, and 4 show the production process for goat milk ice cream, popsicles, and spiced goat milk.

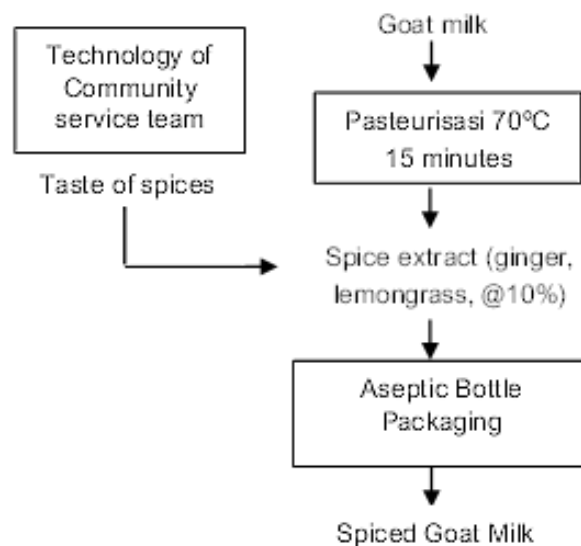


FIGURE 3. Spiced goat milk recipe flowchart

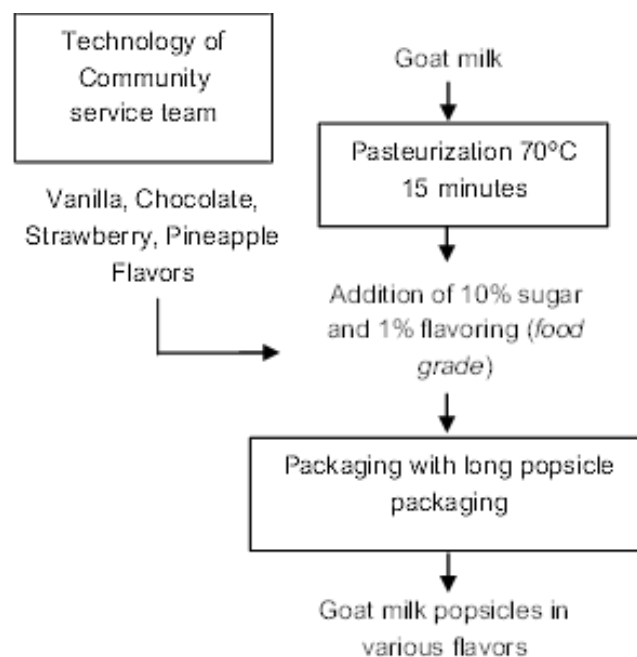


FIGURE 4. Goat milk popsicle recipe flowchart

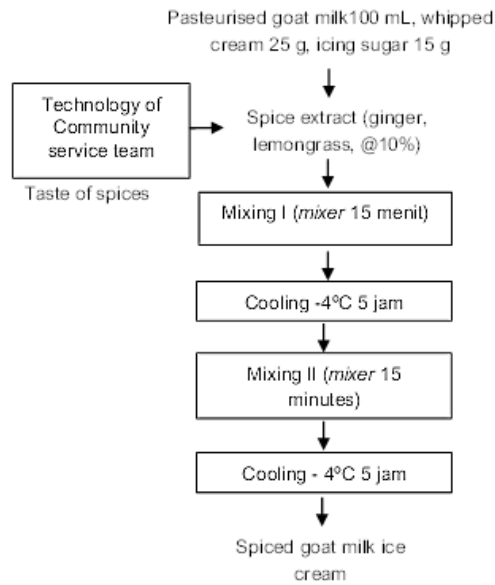


FIGURE 5. Goat milk ice cream production flowchart

The recipes for foods prepared with goat milk were later used by UMKM Ainuna Farm Dairy Milk. Figure 5 illustrates processed spiced goat milk. The excellent products of UMKM Ainuna Farm Dairy Milk are displayed in Figure 6. These manufactured goods may help ensure food security.



FIGURE 6. Spiced Goat Milk



FIGURE 7. Goat milk dan popsicle ice

Eating habits have an impact on the issue of food security. From a social and moral standpoint, it is crucial to acknowledge the demands for food. A population is considered to be in food security when all members have physical and financial access to enough food to meet their needs for sustenance, as defined by Law Number 7 of 1996 concerning Food. This indicates that meeting the requirements for food security include having access to enough food that is inexpensive, uniformly distributed, and of sufficient quantity and quality for the community's purchasing power (Partini & Sari, 2022).

The implementation of information regarding marketing and marketing practices has been accomplished in AFDM. Socials media marketing has been implemented through WhatsApp groups and Instagram. Liesta et al. (2024) asserted that the E-Market Place-Based Online Sales Training for Traditional Market Sellers in Karangayu, Semarang, has the potential to significantly enhance public incomes. Based on the results of producing food products based on goat's milk and final monitoring, there was an increase value between the pre-test and post-test values (20.77%). The test value data was 67.25% prior to the test, and 81.22% following the test. According to these findings, the Ainuna Farm Dairy Milk UMKM is able to produce goat's milk-based goods with acceptable outcomes.

## CONCLUSIONS AND SUGGESTIONS

### Conclusions

Acquired spiced goat's milk, popsicles, and goat's milk ice cream that meet quality standards and are suitable for sale; these items are packaged and labeled attractively and informatively, including nutrition facts and product specifications, and are registered with Badan Penyelenggara Jaminan Produk Halal status. Additionally, financial records and documentation are compiled, and online marketing networks are added.

### Suggestions

Additional development program requires the assistance of the local Trade and Industry Service and the regional government. An economic analysis of the product's benefits is required.

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