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Training on Optimizing the Potential of Fresh Goat Milk into Cheese at Arjuna Farm

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ABSTRACT
Arjuna Farm Sheep and Goat Farm produces goat milk products. Goat milk can be processed into various products, one of them is cheese. This community service activity through training in making cheese products from goat milk aims to provide assistance to farmers with a focus on processing fresh goat milk into quality cheese at Arjuna Farm. Cheese has a longer shelf life than milk. By turning milk into cheese, farms can extend the shelf life of their products. The problems identified include low knowledge and skills of farmers and limited access to appropriate materials and equipment. To overcome these problems, this activity offers several solutions, including training and workshops to improve farmers' knowledge and skills for making cheese from goat milk, direct assistance in the cheese processing process, and provision of simple materials and equipment. So that Arjuna Farm not only sells goat milk, but can also produce cheese and can reach a wider market segment. The methods used in this community service are training and practice, guidance, and monitoring and evaluation.

Keyword: Arjuna Farm, Cheese, Goat milk

1. Introduction

Arjuna Farm was established in 2021 and is a sheep and goat farm located in Mekar Sari Village, precisely on Jl. Satria Gg. Arjuna No. 134, Mekar Sari Village, Deli Tua District, Deli Serdang Regency, North Sumatra. This farm carries the concept of a modern cage that emphasizes the beauty and cleanliness of the farm, thus creating a comfortable atmosphere for visitors. Arjuna Farm has a range of services including Aqiqah and Qurban Services, educational tours, as well as pure goat dairy products. The farm is dedicated to ensuring the cleanliness, comfort and beauty of the farm environment, making it an attractive destination for visitors and quality goat milk products.

Goat milk has long been recognized as an important food ingredient due to its rich nutritional profile and numerous health benefits for humans, including easier digestibility and its suitability for individuals with cow milk intolerance. On this farm, goat milk products are not only produced for commercial distribution but are also available for direct purchase by visiting tourists, who often buy fresh goat milk as a unique and healthy souvenir to take home [1]. However, despite the growing interest and potential, the variety of derivative products produced from goat milk on this farm is still very minimal and underdeveloped. This is unfortunate,

considering the substantial potential the farm possesses to diversify and expand its product line by processing goat milk into various value-added products.

Besides being consumed as fresh milk, goat milk can be transformed into a wide range of derivative products that offer added value and market appeal, one of which is cheese [2][3]. Goat milk cheese, known for its distinctive flavour, creamy texture, and rich nutritional content, is gaining popularity among cheese enthusiasts and health-conscious consumers. The market demand for cheese continues to rise, and its relatively higher selling price compared to raw milk presents a promising opportunity for farmers to increase their income through product diversification.

Moreover, farms that produce goat milk often encounter situations where milk production surpasses the immediate market demand. In such cases, processing the surplus milk into cheese becomes an effective and efficient solution to manage the excess while minimizing waste. Cheese not only has a longer shelf life compared to liquid milk, but it also retains much of the nutritional value, making it a sustainable alternative for storage and distribution [4]. By converting milk into cheese, farms can better preserve their products, reach broader markets, and ultimately generate higher profits through extended sales periods and reduced spoilage losses.

In addition to fresh milk, cheese can be an attractive additional product for consumers or tourist visitors. Product diversification can help farms to reach a wider market segment and increase their competitiveness. Goat cheese has unique characteristics in terms of flavor and texture [5][6]. Some people also have a preference for goat cheese due to its higher nutritional content and possibly easier digestibility compared to cow cheese. By making cheese, farms can provide a product with nutritional value and distinctive flavor to consumers seeking variety in dairy products [7]. Some studies have also shown that goat milk cheese can help boost the immune system, reduce the risk of heart disease, and provide essential nutrients such as omega-3 fatty acids and minerals such as selenium [8].

2. Methods

The method of implementing community service activities is divided into three main activities, namely socialization, training in making cheese products, and mentoring. In detail, the steps that will be taken by the community service lecturer team to assist partners are as follows:

1) Lectures and discussions, conducted when presenting socialization materials on the process of processing goat milk into cheese. This is done to provide knowledge and insight to increase the knowledge of the farmers. Lectures are conducted with questions and answers and discussions so that the level of understanding of the target material is known, and to encourage active participation from the farmers in expressing their experiences and challenges related to goat milk processing.

2) Providing explanation and socialization on the benefits of making cheese from goat milk, which include added value creation, product diversification, and increased income potential for farmers.

3) Explaining the uses and functions of the materials and tools used so that their utilization can be optimized properly, and farmers can operate the equipment independently in future production processes.

4) Perform training/workshop activities on cheese making in front of farmers. After gaining knowledge, partners need to be given practice to improve skills and prove the things that have been conveyed by the speaker. It is expected that the practice will be able to improve skills in real terms and help farmers gain confidence in producing cheese consistently with proper techniques.

5) Assistance and monitoring to determine the extent to which partners have made cheese and the obstacles faced so that they can be resolved properly. This mentoring stage also includes follow-up evaluations, feedback sessions, and recommendations for improvement to ensure the sustainability and success of the cheese-making initiative.

3. Result and Discussion

During the community service that has been carried out, several meetings were held to achieve the results and outcomes that have been designed. This community service activity focuses on making cheese from fresh goat milk at Arjuna Farm, which includes socialization, demonstration, and hands-on practice.

The first meeting, which was held on May 21, 2024, began with a survey of the location of the Arjuna Farm goat farm. From the results of the location survey, information was obtained that Arjuna Farm goat farm sells goat meat and goat milk. Goat meat is widely consumed in various events, such as aqiqah, parties, and as part of the daily diet in many regions. The stable and even increasing demand, especially during Eid al-Adha, makes Arjuna Farm goat farm a potential business. In addition to goat meat, Arjuna Farm also sells goat milk in the form of fresh milk and milk with various flavours. The potential of fresh milk can be further processed into other derivative products, such as cheese and yogurt.

On July 25, 2024, the community services team consisting of lecturers and students conducted socialization activities on the benefits of goat milk and the potential for processed products from goat milk. It is known that goat's milk is known to have a high nutritional content and is easier to digest than cow's milk. In addition, processed cheese products from goat milk have a unique flavour, rich in nutrients that are beneficial for health. The participants were introduced to various types of cheese that can be made from goat milk, such as feta and ricotta.

Meeting on August 2-3, 2024, the community services activities focused on hands-on practice of making cheese from goat's milk. The participants were taught the steps in making cheese, starting from the pasteurization stage of fresh goat milk with the aim of sterilizing pathogenic microorganisms. Pasteurization is an important step in ensuring that goat milk consumed is safe, high quality, and free from health risks associated with pathogenic microorganisms, in addition to sterilizing the equipment used in the cheese-making process. Sterilized goat milk is poured into a sterile container, covered with cling wrap, and left to cool. The next step was to add rennet (containing L. lactis starter) to the goat milk, stir well with a sterile spoon, cover the container with cling wrap and put small holes in the cling wrap, then let the fermentation process run for 72 hours at room temperature. Rennet functions as a coagulant to coagulate milk proteins, especially casein, so that milk changes from liquid to solid (curd). The use of rennet helps shape the initial texture of the cheese. Harder and denser cheeses usually require a larger amount of rennet or a longer clotting time, while softer cheeses use a smaller amount of rennet or a shorter clotting time.

On August 7-8, 2024, the curd that had formed from the fermentation was separated from the non-clumping liquid (whey) by filtration. Then, sufficient salt was added to the cheese solids and finally the cheese was shaped and molded into the desired shape. The finished cheese is stored in the freezer. The addition of salt aims to give cheese a distinctive salty flavour, while the addition of salt also aims to reduce the moisture content in cheese so as to inhibit the growth of unwanted bacteria and mold. This also helps keep the cheese from spoiling and ensures the safety of the product for consumption.

On August 9-10, 2024, each trainee had the opportunity to participate directly in each stage of making cheese from goat's milk. At the end of the activity, the participants conducted an organoleptic test of the cheese to evaluate the flavour and texture of the cheese produced. Each participant is expected to understand the process of sustainable cheese making and have sufficient knowledge to apply the technique at Arjuna Farm. With this activity, it is hoped that the participants will gain new skills in making cheese from goat milk, as well as increase economic value for them and the surrounding community.

4. Conclusion

The cheese-making activity from fresh goat milk at Arjuna Farm has successfully achieved the community service objectives by sharing knowledge and practical skills to the participants. Through a series of training that includes theory and practice, participants not only understand the process of making cheese, but also feel the benefits of quality goat milk products. The results of this activity are expected to increase the economic value of participants and the surrounding community, as well as encourage the development of sustainable local products.

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REFERENCES

[1] Santillo, A., & Ciliberti, M.G. Nutritional characteristics of goat cheese. *Small Ruminant Research*, 107(2-3), 100-109. 2012
[2] Haenlein, G.F.W. Goat milk in human nutrition. *Small Ruminant Research*, 101(2-3), 58-63. 2011
[3] Park, Y.W. Bioactive components in goat milk. In Goat Science (pp. 387-412). *Academic Press*. 2017
[4] Arslan, S. Goat Cheese: Types, Production, and Health Benefits. In Cheese and Dairy Products (pp. 159-175). *IntechOpen*. 2019
[5] Yalcin, H. Nutritional and Therapeutic Properties of Goat Cheese. In Healing Foods (pp. 317-330). *Academic Press*. 2020
[6] Rejane, Maria, Maia, Moisés., Cristiane, Clemente, de, Mello, Salgueiro., Maria, Silvaneide, Pereira, Leitão., José, Ferreira, Nunes. Exploring goat's milk cheese: A systematic review of production techniques and innovations (2013-2023). *Brazilian Journal of Food Technology*, 27 doi: 10.1590/1981-6723.15223. 2024
[7] Young, W., Park., Chelsea, Jeanjulien., Aftab, Siddique. Factors Affecting Sensory Quality of Goat Milk Cheeses: A Review. *Advances in Dairy Research*, 5(3):1-9. doi: 10.4172/2329-888X.1000185. 2017
[8] Snezana, Paskas. The influence of grazing and indoor systems on goat milk, brined cheese and whey quality. *Mljekarstvo*, 73(3):143-154. doi: 10.15567/mljekarstvo.2023.0301. 2023