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EMPOWERMENT OF LIVESTOCK AT PURE FRESH DAIRY FARM THROUGH SOCIALIZATION AND GOAT MILK YOGURT PRODUCTION

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Abstract

This service aims to enhance the quality and quantity of the breeding farm at Pure Fresh Dairy Farm by diversifying dairy products, specifically goat milk yogurt, and promoting them through e-commerce branding and marketing. The method used is participatory action research, where the implementation team and partners together, assisted by students, jointly carry out community service activities from socialization, training, and mentoring as well as socialization in making goat milk yogurt and product marketing. The service results revealed that the farmer's knowledge was only 25% before the socialization and training, but after these activities, the farmer's understanding increased to 100%. The results of the yogurt organoleptic test showed a pure white color, a soft texture, a not-too-pungent aroma, a sour taste, and medium viscosity. The goat milk yogurt is branded as 'Pure Fresh Dairy for Happiness Goat Milk Yoghurt'. We engage in marketing by setting up accounts on Instagram and Shopee platforms. The impact of this service is to provide knowledge to farmers, particularly Pure Fresh Dairy Farm partners, about the technology of diversifying dairy products in the form of yogurt and to add value to their income through the sale of goat milk yogurt products.

Keywords: Dairy Goat, E-Commerce, Milk, Technology, Yoghurt

INTRODUCTION

Consumer demand for goat's milk remains relatively low compared to cow's milk. This is due to the lack of understanding and introduction of goat milk products. Whereas the fat in goat's milk has a smaller globule size, so it is more easily digested by the body than fat in cow's milk (Mumpuni et al., 2020). Additionally, people with mild lactose intolerance can more easily accept goat milk due to its lower lactose content. Dairy goat farms sometimes only produce fresh milk without any processing in other products. The Pure Fresh Dairy Farm, located in Ciamis, specializes in dairy goat farming and livestock breeding. Pure Fresh boasts a total of approximately 100 livestock, all of which produce high-quality milk. Despite their high milk

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production, the partners face challenges such as limited fresh milk sales and insufficient product marketing, leading to a decrease in consumer interest in goat milk.

Product diversification can increase the value of milk quality. Diversification is a business strategy in which a company expands the variety of products offered on the market, either by introducing new products, modifying existing products, or entering different market segments (Hasibuan et al., 2022; Khairani & Pratiwi, 2018). Dairy product diversification is a widely practiced strategy that aims to increase competitiveness, expand markets, and fulfill diverse consumer needs. Product diversification motivates companies to continue to innovate, both in terms of taste, nutritional content, and packaging, so that they can compete with other companies in the market. By creating more valuable variants, such as yogurt, kefir, and cheese, or further processed dairy products, companies can sell them at higher prices.

Yoghurt is a dairy product produced through bacterial fermentation. The most common bacteria used in making yoghurt are *Lactobacillus bulgaricus* and *Streptococcus thermophilus* (Wulanningsih, 2022). This fermentation process converts milk sugar (lactose) into lactic acid, which gives yogurt its characteristic sour taste. The ecological village of Temas Batu city has applied yoghurt from Etawah goat milk to enhance its nutritional value and appeal (Anam et al., 2022). Goat's milk naturally contains less lactose than cow's milk, making it easier to digest for those who are lactose intolerant. Probiotics, or good bacteria, found in goat's milk yoghurt support a healthy digestive tract and strengthen the immune system.

The management of milk marketing at partners also needs improvement. Pure Fresh Dairy Farm does not promote its products to the general public through brochures, social media, or e-commerce. The introduction of dairy products is less than optimal. Therefore, we need to implement more effective marketing strategies, specifically through e-commerce. E-commerce is product marketing via the internet or social media. The internet has already marketed many products (Kamil et al., 2022). E-commerce involves conducting business transactions online, including ordering, payment, and delivery of goods or services. E-commerce allows sellers and buyers to transact without having to physically meet, thus providing convenience and flexibility (Wardana & Mukharomah, 2023). Examples of e-commerce platforms include websites or apps such as Tokopedia, Shopee, Amazon, and Bukalapak, where users can sell or buy a variety of products, from clothing, electronics, food, to digital services. The purpose of this service is to improve the quality and quantity of dairy products through diversification, namely goat milk yogurt, and marketing through e-commerce platforms (Shopee and Instagram).

IMPLEMENTATION METHOD

This community partnership programme is implemented in several stages, namely: Approach Stage, at this stage, the programme implementation team (lecturers and students) conducted a survey or study to identify problems in the community. Socialisation stage, presentation of the initial plan based on the results of observations, determining the priority of problems to be solved, determining suitable solution methods, creating a programme agenda, programme implementation schedule, involving partners and the Community Partnership Programme Team. Implementation stage, in this stage, the programme that has been designed begins to be implemented. Implementation can be in the form of: Community empowerment

through training, application of new technology or innovation. Local communities are actively involved so that they can understand and implement the solutions provided independently. The mentoring and evaluation stage, carried out by the Community Partnership Programme Team together with Partners, Monitoring is carried out to ensure the implementation of the programme is in accordance with the plan. Evaluation involves: Assessing the effectiveness of the programme in solving the problem. The evaluation also involves identifying any challenges or obstacles that may arise during the implementation process. Making improvements or adjustments if necessary.

The service was carried out at Pure Fresh Dairy Farm engaged in animal husbandry which is located at kp Rancawiru Dusun pasir kadu RT 03 RW 07 Petir hilir village, Baregbeg sub-district, Ciamis Regency. The service participants were between 15 and 20 farmers. The implementation time is August-October 2024.

RESULTS AND DISCUSSION

The community service activities carried out in Petir hilir village, Baregbeg sub-district, Ciamis Regency consisted of approach and socialisation, making goat milk yoghurt, organoleptic goat milk yoghurt, training and product marketing.

Approaching and socializing

Based on the results of the approach and socialization conducted by the implementer with farmers, information was obtained that farmers already knew about yogurt. However, there is still uncertainty regarding the taste and proper preparation of yogurt. The socialization was carried out smoothly by the service team (lecturers) and students in transferring information and technology about making goat milk yogurt.

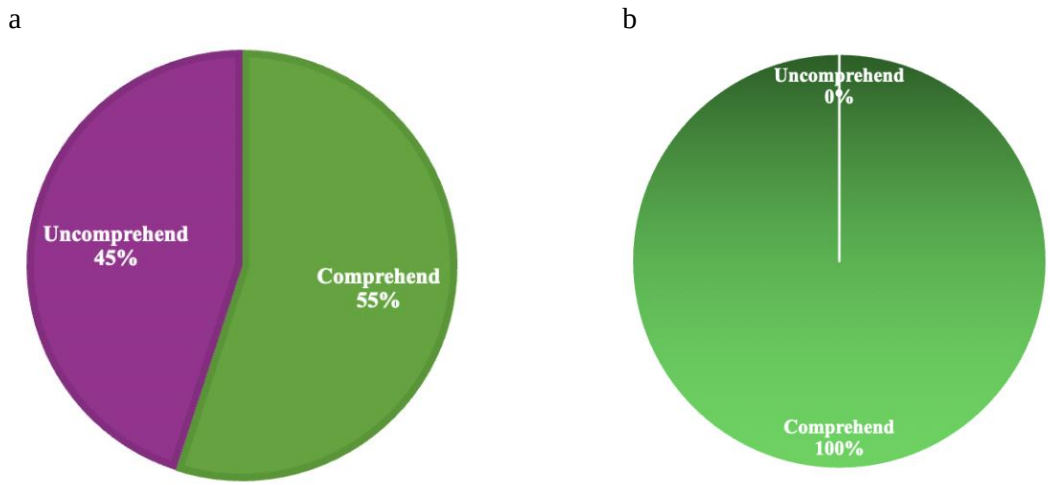

Figure 1. Test results of farmers' comprehend ability (a) Pre-test results; (b) Post-test

Enthusiasm was obtained during the discussion session after the socialization process was carried out. Information transfer in community service is considered important because it provides initial information and understanding before the implementation of community service practices in the field. Good socialization encourages active participation from the community.

They are not only beneficiaries but also play a role in planning and implementing the program. When communities feel involved from the start, they tend to be more active and enthusiastic in participating. Socialization gives them space to ask questions, contribute ideas, and feel involved in the service program process. We also carry out socialization here through pre- and post-tests. The pre-test results illustrated show that only 45% of farmers comprehend the diversification of dairy products in the form of yogurt (Figure 1a). Furthermore, the post test results obtained 100% of farmers comprehend the technology of making yogurt (Figure 1b).

Making goat milk yogurt

The making of yoghurt is preceded by the preparation of tools and materials first, namely fresh goat milk, yoghurt starter (can use ready-made yoghurt or bacterial cultures such as *Lactobacillus bulgaricus* and *Streptococcus thermophilus*), and the tools used are 3 yoghurt maker machines. Both automatic and traditional machines are used to make goat's milk yogurt. In making yoghurt manually through the stages, goat milk heating includes goat milk heated in a pan to a temperature of about 85°C (185°F). This heating is done to kill pathogenic bacteria and improve the texture of the yogurt. Do not let the milk boil. After reaching this temperature, leave it for about 5 minutes. After the milk reaches a temperature of 85°C, the cooling process cools it down to a temperature of 43-45°C (110-115°F). This temperature is ideal for the growth of good bacteria that will be added later. Use a food thermometer to ensure the milk is at the right temperature before adding the bacterial culture. Then adding the culture or starter; once the temperature drops to 43-45°C, the bacterial culture or yogurt starter is added to the milk. Stir gently to ensure the culture is evenly distributed throughout the milk. The fermentation process involves pouring the mixture of milk and bacterial culture into an airtight container. The mixture is left to ferment at a warm temperature of about 43°C (110°F) for 6–12 h, depending on the desired texture and flavor. The longer the fermentation, the more sour the flavor.

A yogurt incubator or a warm place can help maintain the ideal temperature during fermentation. Refrigeration of yoghurt: once fermentation is complete, the yoghurt should be stored in the refrigerator to stop further fermentation. The principle of making yoghurt is the fermentation of the sugar component in milk, lactose, into lactic acid and other acids (Utami et al., 2020). Lactic acid produced during the fermentation process can enhance flavor, increase acidity, and reduce the pH value. The lower the pH of yogurt, the less potential there is for the growth of pathogenic and milk-destroying microbes, resulting in a longer shelf life for dairy products. Leave it in the refrigerator for a few hours before consumption to stabilize the texture. Storage: Yogurt from goat's milk can be stored in the refrigerator and can be consumed within 1-2 weeks (Figure 2).

Figure 2. Packed and labeled goat milk yogurt

For making yogurt using an automatic machine in the form of a yogurt maker that has been given by the servant, the ingredients used are goat's milk and yogurt starter. There are three automatic machines for the service. With this automatic machine, farmers can make yogurt more easily and efficiently. An automatic machine processes yogurt by first adding goat's milk, then mixing the yogurt starter, and finally turning on the machine. Then just wait for the yogurt; the time required is 6–12 h. However, to get a sour yogurt flavor, a longer time is needed. In addition, evaluation and monitoring activities are carried out every time the service activity is completed. The entire service team evaluates the implementation of activities internally, and then an evaluation will be carried out with Pure Fresh partners.

Organoleptic Evaluation of Goat Milk Yoghurt

Evaluation was conducted after the training was completed based on survey results with organoleptic parameters such as color, aroma, texture, and taste to illustrate the level of product satisfaction. Paper sheets containing organoleptic surveys were distributed after yogurt sample products were given to the trainees. The survey sheets were filled in, and the results were analyzed as a reference for the organoleptic test results, with the survey method measured by ranking based on the degree of satisfaction of the trainees with the results of the sample products. The survey sheet also provided a note column so that participants could provide more in-depth comments on the sample products. Organoleptic result assessment for goat milk yogurt usually includes the following aspects: Color shows goat milk yogurt has a color that tends to be solid white. The fermentation process will be a factor in the color yield level of the yogurt. A pure white or slightly yellowish color is considered a sign of excellent quality (Sarifah Ainy et al., 2022; Sinaga & Sihombing, 2021).

As for the aroma assessment, goat milk yogurt generally has a distinctive aroma that is slightly different from cow's milk yogurt, which is slightly sharp and sour, with a more ‘goaty’ aroma. A less pungent aroma indicates optimal fermentation, while a very strong or rancid aroma can indicate poor quality (Evadewi & Tjahjani, 2021; Tursina et al., 2019). For texture, the texture of goat milk yogurt was found to be smooth, creamy, and slightly thick. If the texture is too thin, perhaps the fermentation process is not perfect or the level of thickening agent is lacking (Alqahtani et al., 2021; Yang et al., 2023). Textures that are too rough or lumpy can be

caused by an excessive fermentation process or the improper addition of other ingredients. Taste: the flavor of goat's milk yogurt should be sour but soft on the tongue. This flavor is usually sharper than cow's milk yogurt, with a hint of goat's signature flavor. A bitter or unpleasant flavor can be a sign of contamination or suboptimal fermentation (Haskito et al., 2019). Viscosity: The viscosity value of goat milk yogurt is also significant as it influences the overall eating experience. A good consistency is slightly thick but can still be stirred and consumed easily. This viscosity can be affected by the fat and protein content in goat's milk kambing (Vargas et al., 2008).

Product Training and Marketing

The next stage is the packaging of yogurt products, which are put in 200 ml bottles and labeled with a brand (Figure 2). The 200 ml yogurt packaging has a practical and attractive shape. At this stage, we provided farmers with information on e-commerce marketing. In the current era, online marketing plays a significant role in increasing and attracting consumers. With the e-commerce system, consumers can make purchases anytime and anywhere. This process speeds up transactions, increases customer satisfaction, and increases the likelihood of purchase conversion (Morrison & Firmstone, 2000). E-commerce facilitates direct communication with consumers through chat features, product reviews, or social media, so companies can respond to feedback faster and build customer loyalty (Jain et al., 2021). The activity aims to enable the farmer group to establish a yogurt business and manage it efficiently and profitably. Staff at Pure Fresh Dairy Farm were given insights on how to increase the selling value of goat's milk, which, when sold as fresh goat's milk, is worth IDR 20,000 per liter (1000 ml). By processing it into yogurt products, the value increases to IDR 15,000 per bottle (200 ml). This will enable the partner to earn a profit of Rp 9,820 per bottle. Business management training provided material on marketing, business opportunities, and good business management, as well as making attractive packaging and labels. The outcomes of setting up e-commerce accounts on Instagram (Figure 3a) and Shopee (Figure 3b) are evident.

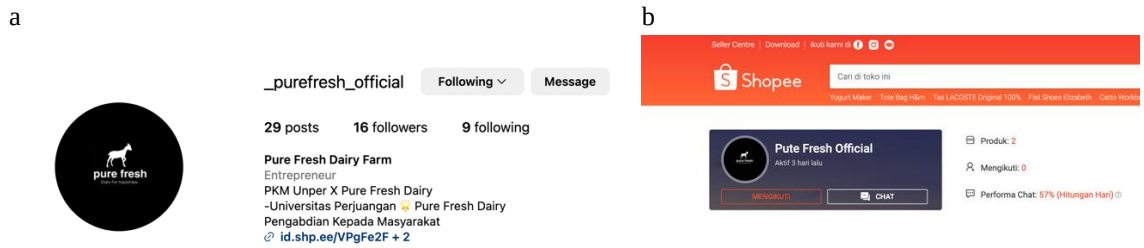

Figure 3. E-commerce marketing of goat milk yogurt products.

CONCLUSION

Empowerment at Pure Fresh through socialization, yogurt making training, and e-commerce marketing account creation training (Instagram and Shopee) has been completed well. The application of technology in diversifying goat milk products provides knowledge and information to partners in initiating dairy products. Additionally, it offers partners educational insights on how to make fruit yogurt, a process that is simple, practical, and potentially lucrative. The process of producing yogurt enhances the market value of milk by

generating a profit from the production price. It is hoped that this activity will inspire other farmers to utilize dairy products by making yogurt products to increase the selling value of income for the farm.

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