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Dairy Cattle Maintenance Management in Raraa Village, East Kolaka Regency

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Abstract
Dairy cattle are ruminant livestock that produce milk whose productivity is very dependent on maintenance management. This community service activity aims to increase the knowledge and skills of dairy farmers in Raraa Village, East Kolaka Regency. This activity was carried out in several stages, including: 1) Socialization of dairy cattle development; 2. Demonstration on the maintenance and feeding of dairy cows; 3. Monitoring and Evaluation. During the socialization activities, the breeders were very enthusiastic in listening and active in the discussion because the breeders in Raraa Village were just getting to know and starting to raise dairy cows. Farmers are also very focused on paying attention to explanations and technical guidance on the maintenance, management and feeding of dairy cows during direct visits to the breeder's pen. At the end of the activity, an evaluation was carried out to determine the level of understanding of dairy farmers. Monitoring and assistance to farmers is also carried out to help farmers who experience difficulties in the process of caring for and feeding dairy cows. This activity can increase the knowledge and skills of dairy farmers so that farmers can maintain and develop dairy cattle in accordance with the government's goal of distributing dairy cattle seeds in the Southeast Sulawesi region.

Keywords: rearing, ruminants, dairy cattle

INTRODUCTION

The national availability of milk has not been able to meet the fresh milk needs of the Indonesian people, so many children have the potential to experience stunting. The average amount of fresh milk consumed by Indonesian people per year is 16.27 kg/capita/year. This number is still lower than Malaysia (36.20), Myanmar (26.7) and Thailand (22.2). In 2020, national milk demand will reach 4,385.73 tons/year, while fresh milk that can be provided nationally is 997.35 tons/year, the rest comes from imports (DitjenPKH, 2021). The low national milk production is partly caused by the low level of dairy cow productivity in Indonesia.

Ditjennak (1983), stated that there are several indicators used as determining factors in raising dairy cattle, namely: (1) Breeding and reproduction; (2) Animal feed; (3) Management; (4) Cages and equipment; (5) Animal health. Dairy cattle productivity is influenced by several factors including the macro and micro environment, maintenance management, housing, disease prevention (Yani and Purwanto 2006), livestock genetics (Anggraeni *et al.* 2015), livestock reproductive performance which includes: age at first calving, months and lactation period, empty period and first mating age after parturition (Atabany *et al.* 2011), feed quality and fulfillment of feed needs (Despal *et al.* 2011), feeding patterns (Asminaya *et al.*, 2017) and continuous availability of animal feed (Ajayi *et al.* 2005). The success of dairy cattle rearing management is very dependent on the correct implementation of Good Dairy Farming Practice (GDFP), especially in the aspects of breeding and reproduction, providing feed and drinking water, management and sanitation, provision of cages and equipment as well as livestock health and welfare (Asminaya *et al.*, 2020).

In general, dairy cattle rearing in Indonesia is carried out traditionally and on a part-time basis (Mukson *et al.* 2009). Farmers keep dairy cows on a small scale with less than 10 dairy cows (Asminaya *et al.*, 2020) with an average ownership of 2-3 dairy cows per farmer (Taslim 2011). In addition, most of the dairy cattle population is centralized on the island of Java where the availability of forage is increasingly limited. One of the efforts made by the government (Ministry of Agriculture) to overcome this problem is to distribute dairy cattle seeds outside Java, namely East Kolaka Regency,

Southeast Sulawesi Province. Efforts to develop dairy cattle in East Kolaka Regency are strongly supported by the local regional government through the issuance of Regent's Decree Number: 100.3.3.2/92 of 2023 concerning Determination of Dairy Cattle Development Areas in East Kolaka Regency. The form of implementation of the issuance of the decree is illustrated by the procurement of 10 heifers in Raraa Village, Ladongi District, East Kolaka Regency. However, in the maintenance process, farmers face problems because the farmer is not familiar with dairy cattle and is seeing dairy cattle for the first time so he needs assistance in maintenance management, especially regarding maintenance, management and feeding of dairy cattle.

METHOD

Location and Participants

This community service activity was carried out in Raraa Village, Ladongi District, East Kolaka Regency, Southeast Sulawesi Province. The target audience who participate in this activity are dairy farmers.

Implementation Method

This community service activity is carried out in the following stages:

Table 1. Stages of implementing activities

No	Activity	Metode	Peran mitra	Output
1	Providing knowledge of dairy cows and maintenance management	Socialization	Prepare the location for carrying out socialization activities	Participants know the proper management and feeding of dairy cows
2	Providing technical guidance on the maintenance and feeding of dairy cows	Live demonstrations and practice	Prepare the location and participants for demonstration activities	Participants are able to apply the management of caring for and feeding dairy cows
3	Monitoring and evaluating the implementation of activities	Evaluation and community acceptance	Implement maintenance and feeding procedures for dairy cows	Participants can care for dairy cows well

RESULTS AND DISCUSSION

Community service activities in Raraa Village, Ladongi District, East Kolaka Regency are carried out in several stages as follows:

1. Socialization of dairy cow development

This socialization activity for the development of dairy cattle begins with an introduction to the types of dairy cattle, management of their maintenance and feeding (Figure 1). The introduction of this type of dairy cattle was carried out to explain the differences between dairy cattle and beef cattle or Bali cattle because breeders are just starting to know and care for dairy cattle. The type of dairy cattle kept by this breeder is Holstein Frisien Crossbred dairy cattle.

Figure 1. Socialization regarding the introduction of dairy cattle types, maintenance and feeding management

During the socialization, the breeders were very enthusiastic and seriously paid attention and listened to the presentation of material from the following sources:

Dairy cows

1. Produce milk in excess of the child's needs (milk production ranges from 10-15 liters/cow/day). Milk contains nutrients (carbohydrates, fats, proteins, vitamins and minerals) needed by the human body.
2. Produce milk every day during the lactation period. The lactation period can occur 5-7 times depending on the condition of the animal during its lifetime
3. Produces solid and liquid manure/organic fertilizer every month because the maintenance system is carried out intensively
4. Produce calves every year
5. Produces meat and offal when discarded. The livestock rearing period ranges from 7-9 years
6. Requires more time spent on maintenance, especially if the dairy cows being maintained have entered the lactation period

Beef cattle

1. Milk production is sometimes not sufficient for the child's needs
2. Does not produce daily milk
3. Produce solid or liquid manure/organic fertilizer every month if maintenance is carried out intensively
4. Produces calves if rearing is directed to breeding
5. Produces meat and offal at the age of 2-4 years
6. The amount of time required for maintenance is shorter, especially if the maintenance pattern is carried out extensively or semi-intensive.

The enthusiasm of dairy farmers was clearly visible from the many questions that arose during the activity. It turns out that local farmers do not know the procedures for raising dairy cows, managing and feeding dairy cows because this is something new for farmers. This activity has opened the farmer's insight that raising dairy cows requires a greater amount of time, diligence and patience if they want to produce more milk. Optimal milk production can be produced if farmers implement Good Dairy Farming Practice (GDFP) properly and appropriately.

2. Technical guidance on maintenance, management and feeding of dairy cows

Technical guidance activities for the maintenance, management and feeding of dairy cows are carried out by direct visits to the farmer's dairy cow pen. These activities are described as follows:

a. Management of dairy cow maintenance

In this activity, breeders are given understanding and technical guidance on how to care for livestock properly and appropriately in accordance with the implementation of the GDFP. Farmers are very enthusiastic in paying attention to instructions and actively discussing so that they can run their livestock business well. Farmers also really want to know how to properly apply GDFP to dairy cows so that their livestock can produce optimally. According to Asminaya *et al.* (2018), the implementation of GDFP can be carried out by paying attention to several aspects, including: 1). Breeding and reproduction include: selecting the right breed of dairy cows, selecting dairy cows based on the highest level of milk production from their parents, mating livestock on time, breeders having knowledge of the signs of lust, the right time to mate livestock, when to breed livestock again after give birth; 2). feed and drinking water including: method, amount and frequency of feeding (forage and concentrate) and drinking water; 3). management includes: how to clean cows, feed/drinking water areas and pens, how to milk them, post-harvest handling, caring for calves and heifers, drying lactating cows, recording business (recording), sanitation, waste management (feces and urine) and the environment; 4). cages and equipment include: cage layout, litter area, availability of equipment and water conditions (clear, no dirt, odorless, tasteless, colorless); 5). livestock health and welfare includes: disease prevention (vaccination), disease treatment and deworming. Whether the implementation of GDFP is good or bad will greatly affect the farmer's income. According to Mardhatilla and Amini (2022), the higher the GDFP value, the more farmers' income will increase.

The enthusiasm of farmers in this technical guidance activity can be the main capital and one of the supporting factors in increasing dairy cow productivity. According to Komala *et al.* (2022), milk production and quality can be increased by increasing the resource capacity of farmers through technical guidance, training and assistance in implementing GDFP. Mardhatilla and Amini (2022)

stated that milk production and quality are the main components that influence farmers' income. The quality of milk greatly determines the price of milk. The better the quality of milk, the higher the price of milk.

Figure 2. Management Demonstration Process for the maintenance and feeding of dairy cows

b. Dairy cow management

Farmers are given technical guidance on how to properly clean cows, feed and drinking water areas and pens, care for calves and heifers, record keeping, sanitation, waste management (feces and urine) and the environment in this activity. Farmers are very focused and enthusiastic about asking questions related to dairy cow management. In this activity, farmers are given instructions that the cows, feed and drink areas and pens must be cleaned before the livestock are given food, drink water or milked so that the milk produced is protected from dirt or other contaminants that can cause damage to the milk. According to Komala *et al.* (2022), the pen and dairy cows are cleaned twice a day before milking. Cows are cleaned by rubbing the entire surface of the body, thigh folds and udder with warm water. Newborn calves must be separated from their mothers and placed in special pen blocks so that they are not trampled by adult livestock until they are 9 months old. Anggareni *et al.* (2008) stated that good care for calves is to provide 4.5-6.5 liters of milk per day.

Farmers are also given the understanding that business records in the form of daily milk production (morning and evening) per cow or cage, reproduction, feed costs, operational costs and income need to be carried out so that the business they run can be well planned, organized, controlled and evaluated. Karnaen and Arifin (2007) stated that business records will affect milk production. According to Costa *et al.* (2013), the unavailability of production and health records for dairy cattle can make it increasingly difficult for farmers to recognize and overcome problems that arise. On the same occasion, breeders were also given the understanding that sanitation needs to be carried out and livestock manure waste must not be piled up and must be immediately processed into organic fertilizer or biogas. Livestock waste must not be thrown or flowed directly into rivers to avoid environmental pollution.

Figure 3. Dairy cows in Raraa Village, Ladongi District, East Kolaka Regency

c. Providing feed and drinking water

In this activity, breeders receive technical guidance on how, amount and frequency of feeding (forages and concentrates) and drinking water. The best way to feed dairy cattle is after the cattle have been milked. The amount of forage and concentrate fed must be in accordance with the physiological needs of dairy cows and the frequency of administration is done twice a day in a timely manner. Drinking water must be available continuously (adlibitum). Feeding of dairy cows is generally

influenced by feed availability. Feed availability will greatly influence milk production and livestock carrying capacity (Macdonald *et al*., 2008), the scale of the dairy farming business (Jaarsma *et al*., 2013) and feeding scenarios (Peters *et al*., 2016). Sudono *et al*. (2003) suggest that feeding cows that are in production or are lactating must meet basic living needs and milk production. It is recommended that concentrate be given at 50% of milk production, while for forage it should be given at 10% of body weight. Feeding must meet the aspects of feed adequacy (Despal *et al*., 2011), variations in the amount of feed given (Pasaribu *et al*., 2015) because it affects the milk production produced. According to Nurhayu *et al*. (2017), providing concentrate feed with a PK of 19.04% can improve the milk productivity of lactating cows, by providing forage adjusted to the live weight of lactating cows.

3. Monitoring and Evaluation

In the final stage of implementing community service activities in Raraa Village, monitoring and evaluation was carried out to determine the level of understanding of dairy farmers. At this stage, the team implementing community service activities provides assistance and helps farmers who experience difficulties in the process of caring for and feeding dairy cows. Dairy farmers are slowly starting to implement maintenance and feeding patterns for dairy cows that comply with the GDFP.

CONCLUSION

Community service activities in Raraa Village, Ladongi District, East Kolaka Regency can increase the knowledge and skills of dairy farmers. Dairy cattle farmers are very enthusiastic about keeping dairy cows because there are more benefits and profits that can be received, including daily income from milk, monthly income from processing livestock manure (organic fertilizer) and annually from selling calves.

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