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Candy for Cows: Improving Nutritional Status of Cows in The Sarono Makmur Yogyakarta Farmer Group

Ninuk Sholikhah Akhiroh^{1*}, Elly Kismini¹, Antari Ayuning Arsi¹, Nur Hidayah²

¹Universitas Negeri Semarang, Indonesia

²Universitas Tidar Magelang, Indonesia

*Corresponding author: ninuk.akhiroh@mail.unnes.ac.id

Abstract

Cattle farming on the slopes of Mount Merapi is a livelihood sector that has existed for a long time and is a tradition inherited from generation to generation. Cattle farming on the slopes of Mount Merapi or more precisely in Cangkringan District, Sleman Regency not only requires green food, but also concentrates and supplements. The provision of concentrates and supplements has been carried out by bombardment. Therefore, it is necessary to introduce another way to provide nutrition for cows, which has several advantages compared to feeding, namely giving concentrate candy. Concentrated candy has several advantages, such as, it can be made using ingredients found around the farmer, and portions of the candy can be used to provide nutrition for a certain period of time, for example one month, so the farmer doesn't have to bother with bombardment every day. This is the basis for carrying out community service in the form of training in making concentrate candy for cows. This community service program is implemented through a series of activities which include socialization, Focus Group Discussions (FGD), and training/simulations. The socialization was carried out with an explanations by an animal nutrition expert about the ingredients and contents of the candy, and continued with discussion and practice in making candy with facilitation and supervision from the community service team and cow feed expert. With this program, it is hoped that the community will be developed, empowered and independent so that they can implement this program in a sustainable manner.

Keywords: Alternatives, Candy, Cattle Farming, Concentrates

INTRODUCTION

Cattle farming on the slopes of Mount Merapi is a livelihood sector that has existed for a long time and is a tradition inherited from generation to generation (Andarwati, 2017). This farm still survives today and is the main source of livelihood for the people on the slopes of Mount Merapi. This happens because local people carry out economic activities related to agriculture, for example dairy cattle (Wimbardana, 2014).

In Cangkringan District, Sleman Regency, the majority of people work as livestock breeders and farmers. They are usually called farmer-breeders because they farm grass to raise livestock. The income generated from working as a breeder is twice the income of the minimum wages of Sleman Regency, Yogyakarta (Widodo, 2017).

Cattle farms in Cangkringan do not only need forage, but also concentrates and supplements (Despal, 2017). Basically, cow feed must meet the needs for carbohydrates, protein, fat, vitamins and water content (Wahyuni & Amin, 2020). There are a number of studies on the effect of nutrition on cattle productivity, such as research by Akbar and Priyana (2022), Minggu, et al (2021), Budiari et al (2020), Rusdiana and Sejati (2019), Budiari and Suyasa (2019), and Hernaman (2018).

Concentrates and supplements on farms on the slopes of Mount Merapi are usually called *kombor*. The aim of providing this concentrate is to increase the quantity and quality of milk produced by the dairy cows they raise. Farmers get concentrate from livestock groups that are members of the cooperative and payment is made through reduction in the value of milk sales prices to cooperatives (Alviawati, 2013).

The availability of raw materials for making cattle concentrate feed is related to the seasonal

influence. During non-harvest season, there is often a shortage of ingredients for making concentrate such as rice bran and bran, causing the price of concentrate to be more expensive (Anie, 2015). This scarcity also causes changes in the composition of ingredients for making concentrate so that farmers give more effort to ensure the recommended standards for providing good nutrition for cattle.

Expenditures used for feed costs are around 60-70% of all livestock management costs, therefore changes in the composition of ingredients for making concentrate affect the purchasing power of farmers (Rusdiana & Sejati, 2019). Many breeders have complained about the soaring concentrate prices. Therefore, there is a need for alternatives that can be a solution to reduce the costs of purchasing their concentrate every month. This alternative is in the form of making cow candy which is used to give concentrate to the community's cattle.

Based on the conditions of the partners, a program "Training in Making Cow Candy as an Effort to Minimize the Cost of Purchasing Concentrates for the Sarono Makmur Farmer Group" has been held. In this activity, farmers were able to make cow candy as an alternative in reducing costs for purchasing cow concentrate. Apart from that, in making cow candy concentrate, household waste can be used as raw material so that there is conservation value in it.

Providing candy as nutrition for cows has been carried out by a number of breeders with assistance from a team of experts from various universities. However, the program designed for breeders in Wukirsari village has differences in terms of the characteristics of cattle management, as well as the pressure to use materials from the surrounding nature.

The training program for making candy for cows is based on the following problems:

- a. The cost of buying concentrate is quite expensive.
- b. Lack of public interest and awareness in utilizing household waste.
- c. There are still limited community empowerment programs that can encourage farmer groups to innovate and develop according to their livelihood, as livestock breeders.

METHODS

Location and Time of Activities

This community service activity aims to assist cattle breeders in the Sarono Makmur farmer group in understanding more about the nutrition needed by cattle. The community service was carried out for one full day, namely on Thursday, June 1, 2023. The location was in Cangkringan District, Sleman Regency, Yogyakarta. The activity was carried out in the communal pen of Tanjung Hamlet to attract the attention of breeders to come to the community service activity. The activity involved all members of the Sarono Makmur Breeders Group, one expert and the community service team.

Implementation of Activities

1. Pre-Action

This stage consists of analyzing partner's needs, administration and licensing, and preparing proposals for community service activities. The pre-action stage is the initial activity carried out after analyzing what partners need and was used as a basis for community service activities.

2. Action

This stage begins with the introduction of cow candy concentrate to partner and continues with assistance in making cow candy concentrate, which is fully explained as follows.:

a. Introducing Cow Candy Concentrate

The introduction of concentrates to Sarono Makmur farmer group was carried out during socialization activities. Socialization is intended as a form of discussion with breeders. The breeders were given the opportunity to convey their knowledge about cow concentrate and the problems they face. This activity was accompanied by Nur Hidayah, S.Pt., M.Sc., an expert in husbandry, by sharing knowledge about cow candy concentrate. The cow candy will be an alternative source of energy and protein for livestock.

b. Assistance in Making Cow Candy Concentrate

After the farmers had had knowledge about cow candy concentrate, they were trained to make cow candy in stages. In this activity, the community service team facilitates all the needs. Not only facilitating, the team also accompanies the breeders in the process of making cow candy with Nur Hidayah, S.Pt., M.Si.

RESULTS AND DISCUSSION

Partner's Needs Analysis

The preparing activities of the community service were analyzing partner needs, managing administration and licensing, and proposing programs. The community service team analyzed partner's needs and used it as the basis for next activities. It was carried out by visiting the hamlet head's house, and making a joint agreement regarding the theme and the programs. Next, the team coordinated with the head of the kennel in Tanjung Hamlet, for more information about the community service activities.



Picture 1. Initial discussion of community service programs with the head of Tanjung hamlet.

Before implementing the community service, the community service team together with animal feed expert, Mrs. Nur Hidayah, discussed the preparations needed in the community service implementation. Preparation included identifying the environmental conditions of the cowshed and the feed ingredients used by the farmer.

Wukirsari breeders use feed ingredients such as elephant grass, bran, Pur BR, and straw. Meanwhile, the environmental conditions around the enclosure are overgrown with elephant grass, livestock waste is used to fertilize elephant grass plants, while facilities such as water and electricity are provided in the enclosure where the community service is carried out. After identification, the community service team adjusted the ingredients for making cow candy concentrate to suit the needs of the breeders.



Picture 2. Observation of communal enclosures in Wukirsari Village

Socialization of Ingredients for Making Cow Candy Concentrate

Socialization was the initial stage in the implementation of community service. The socialization process was carried out through discussions with the breeders. The socialization was carried out by Mrs. Nur Hidayah, S.Pt., M.Sc. by providing knowledge about types of animal feed, such as coarse feed in the form of grass, leaves, straw, and trees. Apart from that, there is also concentrate and supplement feed for livestock.



Picture 3. Types of animal feed

Mrs. Nur Hidayah also showed breeders in Wukirsari about ingredients for making concentrates such as bran, pollard, soybean meal, coconut meal, molasses, CaCO_3 , premix and salt. This concentrate will later be given to livestock as an additional supplement.



FORMULA KONSENTRAT

Bahan	Persentase (%)	Jumlah (Kg)
Dedak	25	1,25
Pollard	35	1,75
Bungkil Kedelai	10	0,5
Bungkil Kelapa	20	1
Molases	5	0,25
CaCO_3	3	0,15
Premix	1	0,05
Garam	1	0,05
Total	100	5

Picture 4 & 5. Concentrate ingredients and formula

The breeders enthusiastically took part in this socialization activity. They did not only listen to the presentation of material from Mrs. Nurhidayah, but also ask some questions about livestock. Breeders also share their experiences of raising livestock to ask for advice.



Picture 6. Discussion activities between breeders and the animal feed expert

Making Cow Candy Concentrate

After knowing the ingredients for making cow candy concentrate, the breeder was then accompanied by Mrs. Nurhidayah and the community service team to practice making cow candy concentrate. The breeders who attended the community service activity were divided into 4 groups with approximately 4 breeders in each group. The community service team has prepared materials and equipment needed. The ingredients have been prepared according to the required composition, with the directions from Mrs. Nur Hidayah. The community service team helped providing a base for making concentrate with trash bags cut to resemble mats. Mrs. Nur Hidayah provides direction and guides the manufacture of concentrate to breeders.

In the process of making this concentrate, farmers mixed the ingredients by hand. The stages of making concentrate were by mixing the ingredients from the smallest to the largest. First, soybeans were mixed with coconut meal until completely mixed. The mixture of ingredients was then added with polar until evenly distributed. After that, it was mixed with the bran until evenly distributed. The mixture of ingredients was then added to the molasses little by little so that it does not clump.



Picture 7. The process of making concentrate by Wukirsari breeders and community service team.



Picture 8 & 9. Giving concentrate mixtures to livestock

The process of making candy concentrate uses simple tools with the consideration that farmers can make it themselves using the tools around them. The important tool to use is a candy printer which can use a pipe or press and stick to compact the material to be printed. This tool is important for compacting the mixture of ingredients so that it is solid and does not crumble when given to the cow. The process of making concentrate uses local resource materials available in the agricultural

environment and agricultural waste that is unused but has good nutritional content for cows.



Picture 10 & 11. The process of roasting the lime by the service team is then mixed with other ingredients

The mixture of materials is placed in a *paralon* and then compacted with wood. The solid material is then dried in the sun for 3-5 days.



Picture 12. The concentrate candy made by Wukirsari breeders

The activity of making cow candy concentrate lasted for approximately 60 minutes, at the end of which there was a further direction from the source person about how to give cow candy to livestock, and pay more attention to the nutrition of the feed given to livestock.

After training in making concentrate and cow candy, an evaluation was held regarding the results of cow candy making. Animal feed expert Mrs. Nur Hidayah observed the cow candy which had been dried for approximately 2 weeks. The texture of the cow candy made meets the criteria, namely hard and dense.

Wukirsari breeders were also given written information about how to make cow candy concentrate. This aims to enable Wukirsari farmers to continue making the candy by themselves. Besides, the community service team represented by Mrs. Nur Hidayah handed over tools to make cow candy. This tool is intended to be used by farmers, so that they do not have difficulty in making cow candy. The way to use this tool is the same as compacting cow candy concentrate with *paralon* and wood. This tool is more practical by turning the existing lever.



Picture 13. The cow candy print

Participants' Responses

There are a number of responses that can be identified from the participants. First, citizen participation. The day before carrying out training on making cow candy concentrate, invitations were given to farmers in Wukirsari Village. On the day of implementation, all breeders who had been invited attended. Participants in the training also always followed the steps explained in the previous material presentation session.

Second, the participants were active to ask questions. If there is new material that they don't know, they enthusiastically ask. The participants also asked to make sure whether they have done correct steps.

Third, there was an attitude of mutual assistance. Participants were deliberately divided into several small groups so that they could focus more during the process of making cow candy concentrate. Even though they have been divided into small groups, they still show mutually helpful behavior with other groups. Of course, good behavior that appears during the activity is an indicator of a good response to the community service activities.

Problems Encountered

The community service has been carried out well despite the obstacles or problems. One of the obstacles encountered was the lack of complete equipment preparation. The community service team did not prepare several tools due to the tight research schedules. This problem was finally resolved with the arrival of the required tools, although not in accordance with the planned time. Another problem was the postponement of the implementation day to suit with the time availability of the participants. The last problem was that the number of participants were less than the number targeted by the team. This was caused by the busy activities of the villagers.

Evaluation of The Community Service Program

After the community service was carried out, the next stage was the evaluation stage, carried out by the community service team to determine the level of success of the service that has been carried out. Evaluation is carried out by reflecting on the process of community service activities from planning to implementation.

The community service team assessed that the program was going well. This was based on the fact that the program was carried out in accordance with the plan that had been prepared, and the stages formulated. This community service is also assessed from the level of presence of Wukirsari breeders and the breeders' activeness in participating in activities. The implementation of community service should pay attention to participants' responses so that the training provided is truly understood and can be applied on their farms.

Training on making cow candy concentrate needs to involve experts in the veterinary field to provide important information useful for feeding livestock.

The community service program also needs regular follow-up programs so that farmers in Wukirsari can properly understand how to utilize resources in the surrounding environment to make concentrates and candy for livestock.

CONCLUSION

The community service activities of making concentrate candy from local resources to improve the nutritional status of cattle for the Sarono Makmur Breeders Group, Sleman, Yogyakarta were carried out well and received enthusiasm from the residents. This training can provide understanding and skills in making concentrate candy which can especially be used to support the Sarono Makmur Breeders Group in Wukirsari. By inviting experts in the field of animal husbandry, farmers can learn directly from experts about animal feed. This training is a means for Wukirsari breeders to better utilize local resources around them to be used as animal feed. Besides, farmers can also save money on purchasing concentrate and are able to make it themselves with more appropriate nutritional measurements for livestock. The community service team has participated in helping the Sarono Makmur breeders Group utilize local natural resources by providing the knowledge and tools needed.

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