Available online at: https://kalamnusantara.org/index.php/najah

Najah: Journal of Research and Community Services

INNOVATION ASSISTANCE IN MANUFACTURING FERMENTED ELEPHANT GRASS AS CATTLE FEED IN BREMI VILLAGE, PROBOLINGGO DISTRICT

Ahmad Patih[1]*, Amsori[2], Hasan Ansori[3], Loviga Denny Pratama[4]

[123]IAID Al Karimiyah Depok
[4]Universitas Islam Zainul Hasan Genggong Probolinggo

[1]ahmad.patih@iaidepok.ac.id
[2]amsori@iaidepok.ac.id
[3]hasan.anshori@iaidepok.ac.id
[4]loviga.pratama@gmail.com

Abstract

Most of the people in Bremi Village have dairy farming businesses. However, some of them are still confused about the nutrition for their cattle. So innovation is needed regarding cow food in the village. The aim of this program is to provide knowledge to farmer groups so they can improve their skills in making fermented elephant grass for animal feed. The method used is the ABCD (Asset-Based Community-Development) method. This outreach was carried out by providing material and practice to farmer groups regarding how to make fermented elephant grass. This material introduces the materials and tools used in the fermentation process, the benefits of fermented elephant grass, the nutritional quality of elephant grass, and techniques for processing fermented elephant grass. The results of the activity evaluation show that community knowledge, especially the livestock breeder group, which initially still had minimal knowledge regarding elephant grass fermentation, has increased quite well after the socialization was held. So it can be concluded that apart from implementing the tri dharma of higher education, this community service also helps government programs in encouraging the productivity of dairy farmers in Bremi Village.

Keywords: Breeders Group, Animal Feed, Fermented Elephant Grass.

INTRODUCTION

Bremi is a village in Krucil District, Probolinggo Regency. Bremi Village consists of three hamlets, namely South hamlet, Central hamlet, and North hamlet. The majority of people in Bremi village work in the livestock and agricultural sectors. Where the majority of heads of families own cattle. Bremi is a village that has enormous livestock potential where most of the people raise dairy cattle. As in Figure 1 below, the majority of people have carried out dairy farming activities.

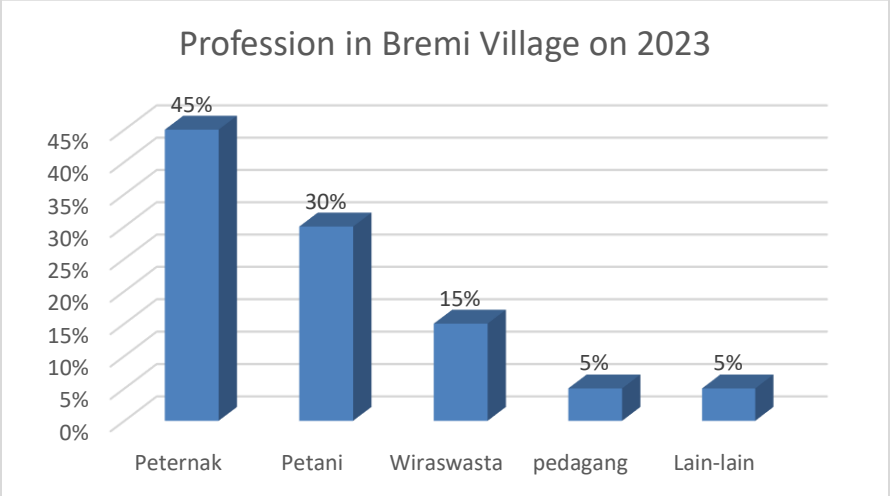

Figure 1. The four largest professions in Bremi Village

*Source: Bremi Village Data for 2023

Feed is the main component for the success of a livestock business. The availability of forage needs to be considered both in terms of quality and quantity to increase livestock productivity (Putri et al, 2020). Forage is one of the determining factors in the development of livestock businesses, especially for ruminant livestock. The inadequate availability of forage, both in quantity and quality, is one of the obstacles in developing livestock businesses. So efforts are needed to provide sufficient forage (Rahman et al, 2017).

In tropical areas such as Indonesia, providing sufficient amounts of animal feed throughout the year is unlikely to be possible without a forage storage or preservation system (Azzahra, et al, 2022). However, until now there are still a few breeders who have thought to the extent that this needs to be initiated in a more advanced direction so that they are not harmed if their livestock lack food every year resulting in a serious excess. This event can be proven at the end of the dry season, when livestock generally become thin due to lack of food.

Feed problems are a common problem experienced by breeders. The availability of forage as feed is uncertain and difficult to store for a long time due to rotting, causing feed shortages (Pratiwi et al., 2015) as quoted by (Shobayar et al., 2021). This is also felt by dairy farmers in Bremi Village. Elephant grass is very good for use as animal feed because elephant grass has excellent nutritional qualities for livestock. Elephant grass usually only lasts for about 2-3 days after it is taken to be used as animal feed. Therefore, the service team is looking for a solution to make elephant grass durable and can be used in the long term, namely by fermenting it. The shelf life of fermented elephant grass can last for about three months.

To avoid the critical period for forage for livestock, it is usually overcome with several alternatives, one of which is by preserving abundant HMT (Forage for Animals) when the environment supports it in the form of fermentation and using it when the amount of feed is low (Syafria & Jamarun, 2019). Generally, the people of Bremi village use fresh elephant grass to feed their cows. In fact, fermented elephant grass can provide more benefits for breeders. Therefore, it is necessary to find a solution to overcome this problem. Efforts need to be made to process elephant grass through a fermentation process to provide animal feed that has good nutritional content (Nata, 2022).

The solution to the animal feed problem in Bremi Village needs to be socialized to farmer groups regarding the production of fermented elephant grass as feed for their livestock. Based on the previous description, the aim of this research is toproviding knowledge to farmer groups so they can improve their skills in making fermented elephant grass for animal feed, as well as educating cattle breeders regarding the consumption of healthy food for cattle.

METHOD

This community service activity was carried out by Zainul Hasan Genggong Islamic University students consisting of 8 people in Bremi Village, Krucil District, Probolinggo Regency. In this research, the service team used an Asset Based Community Development approach in identifying and mobilizing assets. The ABCD method process used in community service activities is shown in Figure 2.

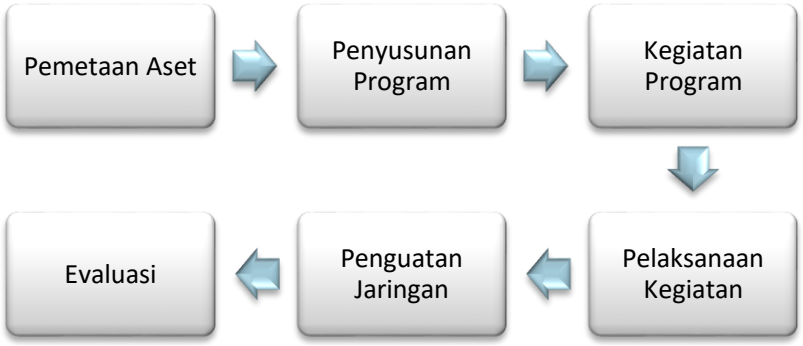

Figure 2. ABCD method process used in community service activities

The process depicted in Figure 2 was used to provide innovation to the breeder group in Bremi village, Krucil subdistrict, through outreach regarding the production of fermented elephant grass as animal feed. This socialization activity is carried out by providing several materials, discussions and practice. It is hoped that this outreach activity can be a solution for farmer groups to overcome the lack of availability of animal feed during the dry season.

RESULTS AND DISCUSSION

Based on the results of community service activities regarding the socialization of fermented elephant grass, it was seen that the cattle breeders were very enthusiastic about the material presented by the community service.The material presented includes:

1. Materials and tools

   The materials and tools used in the process of making fermented elephant grass include:

- Elephant grass
- Molasses 3% of the ingredients
- Fine bran is about 5% of the ingredients
- Groats 3.5% of ingredients
- Plastic bags

2. Benefits of Fermented Elephant Grass

   The benefits of fermented elephant grass are as follows:

   - Contains complete nutrition, namely protein, crude fat and crude fiber. The nutritional value increases because the fermentation process is carried out.
   - Maintaining the quality and nutritional content of food for a long time, even through changing seasons.
   - Can be used as a food reserve when entering the dry season when elephant grass is difficult to obtain.
   - As a solution to utilize unused agricultural waste by fermenting it with elephant grass.

3. Nutritional Quality of Elephant Grass

   The nutritional content of elephant grass consists of 20.29%, crude protein 6.26%, fat 2.06%, crude fiber 32.60%, ash 9.12%,BETN 41.82%, calcium 0.46%, and phosphorus 0.37%. The nutritional value of elephant grass can be increased through fermentation, because fermentation can increase protein digestibility, reduce crude fiber content, and improve the taste and aroma of feed ingredients (Naif et al, 2016). The crude fiber content will affect the digestibility of feed in ruminants. The higher the crude fiber content, the lower the digestibility of the feed (Rustiyana, 2016).

4. Fermented Elephant Grass Processing Techniques

   The technique for processing Fermented Elephant Grass is as follows:

   - Cut or chop the elephant grass into small pieces so that the elephant grass can be put into a container tightly and tightly.
   - Mix the ingredients that have been prepared earlier until they become one mixture.
   - The animal feed ingredients are placed in plastic containers or bags and compacted at the same time so that there are no air spaces.
   - Animal feed ingredients are inserted until they exceed the surface of the container to prevent the possibility of shrinkage of the contents of the container.
   - After all the forage has been added, put it on a plastic sheet and close it tightly. Provide a heavy object such as a rock to press on top of it or a plastic bag filled with soil so that no air can enter.
   - Fermented feed can be used after 3 weeks from the start of the manufacturing process and should only be taken as needed. Then close it again tightly so it doesn't get damaged. Before being given to livestock, fermented feed needs to be dried in the sun or aired first. The practice of processing fermented elephant grass can be seen in Figure 3 below.

The outreach activity aims to increase community knowledge, especially farmer groups, so they can improve their skills in making fermented elephant grass for animal feed. As well asMaking fermented elephant grass can be used by the people of Bremi village as a solution for the communityto overcome the availability of animal

feed during the dry season. One of the causes of low ruminant livestock productivity in Indonesia is the lack of sustainable availability of quality feed ingredients in sufficient quantities. Quality feed that is available continuously throughout the year is an important factor in livestock development efforts (Gustiani, 2015). To be able to grow and develop according to their genetic abilities, livestock need feed in quantities and nutritional content that suit their needs. Therefore, fulfilling animal feed needs is absolutely necessary in order to obtain optimal benefits from the livestock business (Sutaryono, 2021). Forage is the main source of feed for ruminant livestock, so to increase ruminant livestock production this must be followed by increasing the supply of sufficient forage both in quality and quantity (Sari, 2016). Elephant grass (Pennisetum purpureum) is a type that is widely cultivated by breeders today. This grass has high production, is liked by ruminants and can grow on various types of land. It grows to form clumps, easily adapts to both humid and dry environments and cannot grow well in waterlogged land conditions (Nasrullah, 2021). The evaluation results of this community service activity show that members of the breeder group experienced a fairly good increase in knowledge of all the material provided by the service team.

Table 1. Impact of the Genggong Mentoring Program in Bremi Village

No	Before the Mentoring Program	Mentoring Program Process	Post Mentoring Program
1	There is minimal knowledge regarding how to preserve forage for a long time without reducing the nutritional quality of animal feed.	Assistance is provided through outreach to increase knowledge in order to improve skills regarding forage processing techniques using fermentation.	98% of participants understood and experienced a fairly good increase in knowledge in forage processing techniques using fermentation.
2	Every day breeders need to look for elephant grass to feed their livestock	Evidence was provided as well as socialization regarding forage processing techniques using fermentation.	In general, breeders do not need to look for elephant grass every day, because elephant grass lasts longer for animal feed

CONCLUSIONS AND RECOMMENDATIONS

Bremi Village is a village that has many assets, but of the many assets we found, the majority of the people in Bremi village work as cattle breeders. From there our group came up with a new breakthrough which could help improve the economy in Bremi Village. One of the main components of animal feed is elephant grass. Seeing the large number of dairy farmers in Bremi Village, the majority of their animal feed uses elephant grass because this grass is a favorite of livestock and has high nutrition. However, this forage or elephant grass will not last long, lasting around 2 to 3 days. Our group innovated to make fermented elephant grass and socialized it to the people of Bremi village that this elephant grass could last for a long time without reducing its nutritional content. Fermented livestock feed is a very useful alternative feed. Because this fermented feed is proven to have many benefits and advantages. The ingredients used in fermented elephant

grass are elephant grass, molasses, bran, groats, and plastic bags. All the ingredients used in making fermented elephant grass are easy to find in the community. The results of PKM activities in the form of counseling and socialization of elephant grass fermentation were able to increase the knowledge of the people of Bremi Village, Krucil District, so it is hoped that this activity will be able to increase the productivity of cattle in the area.

Suggestions that can be given by the service team from the results of activities to the community are that support from the local village government is needed in the form of procuring sophisticated/modern equipment needed in the process of making fermented elephant grass on a large scale to meet the living needs and production of cattle continuously so that it can reduce waste of agricultural origin.

BIBLIOGRAPHY

Putri, TD, Siregar, TN, Thasmi, CN, Melia, J., & Adam, M. (2020). Factors influencing the success of artificial insemination in cattle in Asahan Regency, North Sumatra. Integrated Animal Husbandry Scientific Journal, 8(3), 111-119.

Azzahra, RH, Husni, A., Liman, L., & Muhtarudin, M. (2022). EFFECT OF RAMAN SUBSTITUTION WITH GAMA UMAMI GRASS SILAGE ON BODY WEIGHT INCREASE CONSUMPTION AND LOCAL SHEEP RATIO EFFICIENCY. Journal of Research and Innovation of Animals, 6(4), 436-443.

Syafria, H., & Jamarun, N. (2019). Effect of Biourin and Arbuscular Mycorrhizal Fungi on Yield, Digestibility of Dry Matter and Organic Material of Kumpai Forage (Hymenachne amplexicaulis (Rudge) Nees.) on Former Coal Mining Land.

Nata, GA (2022). TA: PROCESS OF MANUFACTURING DAIRY GOAT CONCENTRATE FEED IN THE LACTATION AND PREGNANCY PHASE AT CV. BHUMI NARARYA GIRIKERTO VILLAGE, TURI, SLEMAN, YOGYAKARTA SPECIAL REGION (Doctoral dissertation, Lampung State Polytechnic).

Lasamadi, RD, Malalantang, SS, & Anis, SD (2017). Growth and development of dwarf elephant grass (Pennisetum purpureum cv. Mott) fed with organic fertilizer resulting from EM4 fermentation. Zootec, 32(5).

Shobayar, A., Wibisana, G., Wibowo, IL, & Muchtar, K. (2021). Community Empowerment Through the EM4 Fermented Forage (Silage) Utilization Program as Animal Feed in Sukajaya Village, Sumedang. Proceedings Uin Sunan Gunung Djati Bandung, 1(40), 17-27.

Naif, R., Nahak, O.R., & Dethan, A.A. (2016). Nutritional quality of elephant grass (Pennisetum purpureum) silage fed with rice bran and ground corn at different levels. JAS, 1(1), 6-8.

Rustiyana, E., & Fathul, F. (2016). Effect of substitution of elephant grass (Pennisetum purpureum) with palm leaf midrib on crude protein digestibility and crude fiber digestibility in goats. Integrated Animal Husbandry Scientific Journal, 4(2).

Gustiani, E., & Permadi, K. (2015). Study of the Effect of Providing Complete Feed Made from Fermented Corn Cobs on the Productivity of PO Cattle in Majalengka Regency. Indonesian Animal Science Journal (Indonesian Journal of Animal Science), 17(1), 12-18.

Sutaryono, YA, Harjono, H., Mastur, M., & Sumiati, S. (2021). Management of Providing Quality Feed in the Never Retreat Cattle Group, Nyerot Village, Jonggat District, Central Lombok. PEPADU Journal, 2(2), 210-213.

Sari, A. (2016). Potential carrying capacity of secondary crop waste as ruminant feed in Pringsewu Regency. Integrated Animal Husbandry Scientific Journal, 4(2).

Nasrullah, M. (2021). THE EFFECT OF FEEDING FRESH ELEPHANT GRASS (Pennisetum purpureum) ON THE BEHAVIOR AND WEIGHT OF MARICA GOATS (Capra sp.) (Doctoral dissertation, Makassar State University).