

COMMUNITY ENGAGEMENT ARTICLE

Application of Forage Processing Technology (Silage) for Animal Husbandry Communities

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Abstract

Silage is a simple processed feed which is carried out by means of anaerobic fermentation. The community service activity program was done in Werwaru village in 2022. The main target in implementing this community service was the breeder community in Werwaru Village. This team consisted of lecturers and students of Pattimura University Animal Husbandry Study Program (PSDKU). The results of the implementation of community service with the theme of processing forage for animal feed into silage feed got well and smoothly, this could be said because of being participated on the head of villager and his staff. During the presentation on materials, the community gave interactive questions related to silage processing so that the breeder community felt more aware of the benefits, used and methods of processing forage into silage feed. With the implementation of this community service activity, it was hoped that it would provide benefits to the livestock community in Werwaru village.

Keywords

Feed Processing Technology; Silage; Breeder Society; Werwaru Village.

Abstrak

Silase merupakan olahan pakan sederhana yang dilakukan dengan cara fermentasi secara anaerob. Program kegiatan pengabdian kepada masyarakat dilaksanakan di desa Werwaru pada tahun 2022. Sasaran utama dalam pelaksanaan pengabdian ini yaitu masyarakat peternak desa Werwaru. Tim pelaksana pengabdian kepada masyarakat ini terdiri dari dosen dan mahasiswa program studi peternakan (PSDKU) Universitas Pattimura. Hasil dari pelaksanaan pengabdian kepada masyarakat dengan tema pengolahan hijauan pakan ternak menjadi pakan silase berjalan dengan baik dan lancar, hal ini dapat dikatakan karena banyaknya masyarakat yang berpartisipasi, selain itu hadir juga kepala desa beserta jajarannya. Di sela-sela pemberian materi masyarakat memberikan pertanyaan interaktif terkait pengolahan silase sehingga dengan itu masyarakat peternak merasa lebih memahami terkait manfaat, kegunaan serta metode pengolahan hijauan menjadi pakan silase. dengan terselenggaranya kegiatan pengabdian kepada masyarakat ini diharapkan dapat memberikan manfaat untuk para masyarakat peternak yang ada di desa Werwaru.

Kata Kunci

Teknologi Pengolahan Pakan; Silase; Masyarakat Peternak; Desa Werwaru.

1 | INTRODUCTION

In the livestock industry, especially in the ruminant livestock business, feed is the main and most critical component. The main purpose of feeding ruminants is to meet their basic living needs, as well as support growth and reproduction. Ruminants rely heavily on forage as the main source of fiber. Therefore, it is very important to ensure that the provision of forage meets all aspects of livestock needs, both in terms of quality and quantity of feed, in accordance with previous research findings [1][2]. Forage, which includes a variety of plant-based materials that do not negatively impact livestock growth, is an essential dietary component. Quality forage, adapted to the nutritional needs of livestock, plays a key role in their optimal growth and development. Giving forage to livestock can be done directly in fresh condition or in the form of forage that has been processed first [3]. Population growth which continues to increase every year requires changing the function of land into residential areas, which means that grazing land immediately decreases. In addition, Indonesia's climate pattern, which is characterized by rainy and dry seasons, means that forage is not available throughout the year. For this reason, efforts are needed to process feed to maximize the availability of abundant forage during the rainy season, so that the limited fresh and quality forage during the dry season (famine period) can be handled properly. Processing fresh forage by making silage can be one solution to overcome feed shortages and help provide feed throughout the year. The forage processing technique in silage is the processing of fresh forage that is stored or aged in an airtight (vacuum) place. Silage can be made from one type of forage, or it can also be a mixture of forages, both high and low fiber forages [4]. Based on this description, making silage is an excellent way to support feed availability and sustainability of the ruminant livestock business in supporting population growth and limited grazing land.

Rapid population growth and changes in land use pose significant challenges in maintaining sustainable animal feed production. Given that a large part of feed production depends on climatic conditions and land availability, climate change and urbanization have had a significant impact. Additionally, increasing demand for livestock products has pushed the industry to seek more efficient and sustainable solutions in feed production. The use of technology in feed production, particularly silage production, has shown significant potential in overcoming these challenges. Silage, with its unique fermentation process, not only allows for longer term storage of forage, but also improves the nutritional quality provided to livestock. This process ensures that fiber-rich forage remains available to ruminants, even in times when fresh forage is difficult to obtain. Recent developments in feed processing technology have enabled farmers to optimize the use of existing resources. Through this processing technique, farmers can reduce waste, increase feed efficiency, and ultimately ensure the health and productivity of their livestock. The availability of stable and high-quality feed is important to maintain livestock health, especially in facing environmental and economic challenges.

Apart from that, processing feed through silage also provides environmental benefits. Reducing the need for sustainable grazing land helps maintain ecosystems, reduces soil erosion, and lowers the environmental impact of the livestock industry. This is in line with sustainable development goals, which aim to create more efficient and sustainable agricultural systems. Making silage is not only a technical solution, but also a strategy that considers environmental and socio-economic aspects in the livestock industry. By utilizing feed processing technology such as silage, the livestock industry can adapt to emerging challenges, ensure sustainable production, and support population growth responsibly. In approaching this challenge, collaboration between breeders, scientists and policy makers is key. The exchange of knowledge, innovation and best practices between various stakeholders is important to ensure that the solutions implemented are not only effective but also sustainable in the long term. Therefore, programs such as community service implemented in Werwaru Village provide a golden opportunity to integrate academic knowledge with field practice, empower the farming community, and promote sustainable feed production methods.

Through these efforts, the hope for a more sustainable and resilient livestock industry becomes more real. Making silage as part of feed processing technology promises a brighter future for farmers, livestock, and the environment. It's not just about meeting current needs, but also about ensuring that resources are available for future generations. In line with the goal of community service, the service team is committed to not only providing technical solutions, but also strengthening relations between the university and the community. We believe that through close collaboration, we can overcome the challenges faced by the livestock industry and pave the way for innovation that will bring benefits to all parties involved.

2 | MATERIALS AND METHODS

Implementation of Community Service in Werwaru Village in 2023 with the target of those in general and specifically the buffalo farming community. The implementation of this community service begun with a socialization process related to the objectives of the animal husbandry study program for the activity of providing material to breeders regarding the method of processing silage as animal feed. After obtaining approval from the Werwaru village representative, in this case the Werwaru village head, the team immediately coordinated with the village to determine the time for carrying out the intended activities so that the time for community service implementation did not interfere with community activities.

3 | RESULTS AND DISCUSSION

3.1 Results

The implementation of community service was conducted in Werwaru village by the community service team had been done properly without any significant obstacles. The community service team consisted of lecturers and students of the Pattimura University Animal Husbandry Study Program (PSDKU). The community service process was in accordance with the targets and goals, which was the purpose of this community service that was to provide education to the livestock community in Werwaru village about the methods and benefits of silage feed for cultivated livestock.



Figure 1. Education to The Livestock Community in Werwaru Village

The implementation of community service with the theme of processing silage feed for livestock was proposed with the aim that breeders in Werwaru village could recognize, knew and understood more clearly about the benefits and used of processing silage feed. The community service was attended by the head of villager in Werwaru and some his staff and the community who took the time to gain more knowledge regarding the methods and benefits of silage feed for the livestock they had been cultivating so far. Silage is a simple feed processing technology by means of aerobic fermentation so that the processed forage is of better quality when given to livestock [5] [6]. During the process of giving material to giving a demonstration of making silage feed, all participants carefully watched the whole process and in between some participants asked questions related to the benefits and uses of silage for livestock. For the farming community in Werwaru village, silage feed is something new for them so they feel that this community service activity provides input to them regarding the processing of animal feed for them. In general, the farming community conducts livestock business only based on experience and information from fellow breeders, so knowledge only includes what they get in the field without any additional knowledge [7][8]. Through community service activities related to the processing of forage fodder into silage feed it became a forum for developing knowledge for the Werwaru village community in general and specifically for the livestock community so that it could assist the community in overcoming the shortage of fodder sources, especially during the famine forage season, namely during the dry season. Indonesia has two seasons in a year, namely the rainy season and the dry season. During the dry season, the availability of fresh fodder for livestock is generally very limited, so to anticipate this, a feed processing method is needed so that the abundant feed during the rainy season can be processed to prepare for the rainy season. drought so that the availability of feed is available throughout the year [9][10].

3.2 Discussion

The successful implementation of community service in Werwaru Village, which focuses on education and the practical application of silage feed processing, presents several important points for discussion. This includes the project's impact on local livestock practices, the adaptability of communities to new agricultural technologies, and the broader implications for sustainable livestock farming in regions with similar environmental conditions. First, the enthusiasm and involvement of the Werwaru community, including the village head and his staff, shows the community's strong interest in innovative farming techniques. Openness to learning and adapting new methods is essential to the evolution of traditional farming practices. The success of service activities in introducing silage technology, a new concept for many local farmers, shows that educational outreach programs can effectively bridge the gap between academic knowledge and the application of agricultural practices. The importance of silage feed in Indonesia's unique climatic conditions, especially the challenges posed by the dry season, cannot be denied. The program's focus on silage feed preparation and storage methods directly addresses the critical issue of forage scarcity during the dry season. This is in line with findings from other regions with similar seasonal challenges, where silage has been used effectively to ensure consistent feed supplies [9][10]. By equipping farmers with the skills to prepare and store silage, this project not only provides a solution to the problem of feed scarcity, but also contributes to the long-term sustainability of rural farming.

Additionally, the shift from traditional knowledge to a more structured and scientific approach to animal feed preparation marks a significant step forward for society. The results show that most farmers previously relied on informal information shared by peers [7][8]. The introduction of silage technology and the scientific principles on which it is based represents a shift towards evidence-based agricultural practices. This transition is critical to improving farm efficiency and productivity, as well as empowering farmers to make informed decisions regarding their farming practices. The involvement of the Pattimura University Animal Husbandry Study Program (PSDKU) in initiating and implementing this community service project shows the potential of this collaboration to produce practical and specific solutions for the community. This underscores the value of academic research and expertise in addressing the real-world challenges facing rural communities.

However, it is important to consider the challenges and limitations faced in implementing these community service projects. Although this project was successful in Werwaru Village, this success may need to be adapted in other communities to suit different contexts, resources, and levels of local knowledge. Ongoing monitoring and follow-up is essential to ensure that transferred skills and knowledge are applied effectively and to address emerging challenges. Community service activities in Werwaru Village can be a valuable example for similar initiatives in other rural communities. This shows the effectiveness of combining academic expertise with practical training to overcome specific agricultural challenges. Going forward, the sustainability of these projects will depend on continued support, the ability to adapt to changing environmental conditions, and the willingness of communities to accept new agricultural technologies and practices.

4 | CONCLUSION

Community service initiatives carried out in Werwaru Village have shown a significant positive impact on the knowledge and practices of local farmers, especially in the field of animal feed processing technology. This project, by introducing and explaining the methods and benefits of silage feeding, has effectively addressed one of the main problems in the region: the scarcity of animal feed during dry or famine seasons. This initiative has empowered farmers with the skills and understanding necessary to prepare and store high-quality silage feed. This knowledge is invaluable, especially considering the environmental challenges inherent in this region, which is characterized by distinct wet and dry seasons that directly affect forage availability. The ability to process and preserve forage when it is abundant ensures a stable and reliable feed supply throughout the year, thereby reducing the risks associated with forage shortages. In addition, the success of this service activity underscores the importance of community-based education programs in improving agricultural practices. By bridging the gap between academic research and practical application, this initiative not only strengthens the technical capabilities of local livestock farmers but also encourages a more sustainable approach to livestock farming in Werwaru Village. The involvement and enthusiasm of the community, including important figures such as village heads, further highlights the effectiveness of this collaborative approach. This service activity provides evidence of the potential of targeted educational interventions in changing traditional agricultural practices. This report highlights the important role of knowledge transfer in addressing specific and context-based challenges in rural communities. Therefore, the experience in Werwaru Village can be a valuable model for other regions facing similar challenges, illustrating how academic expertise, when applied practically, can provide great benefits in community development and sustainability. In conclusion, community service activities in Werwaru Village not only eased concerns about food scarcity, but also laid the foundation for more resilient and adaptable agricultural practices. The success of this initiative paves the way for further collaborations and interventions aimed at improving the sustainability and productivity of rural farming communities.

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