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# Utilization of Local Resource Feed For Balinese Cattle

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**ABSTRACT**

This community service activity is carried out as a form of academic contribution to enhance the knowledge and skills of the community, especially the Kelompok Ternak Amerta Sari in Kesiut Village, in processing and preserving local resources as alternatives for livestock feed, particularly for Bali cattle. The issues faced by farmers in this area include limited availability of fresh feed, especially during the dry season, and the suboptimal use of local feed materials such as straw, turi leaves, and other agricultural waste. Through this activity, the service team provides training and guidance in feed processing techniques such as fermentation, silage, and the production of complete feed based on local resources. The methods used include counseling, technical demonstrations, and hands-on practice together with the farmer group members. The results of this activity show an increase in the understanding and skills of the community in preserving and processing livestock feed.

**Keywords:** Baliness cattle, feed, local,

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## INTRODUCTION

One of the important factors that determines the success of a livestock business is the provision of sufficient quantities of quality rations. The ration costs ranges from to 60-80% of the total production cost, causing the quality of rations to be maintained. Good and quality rations must meet quality requirements includinge safety, health and economic aspects and be finished ingredients that are a mixture of several feed ingredients given to livestock to meet the daily needs of various body functions, such as basic life, production and reproduction. Rations contain several

nutritional substances including water, energy, fat, protein, minerals and vitamins (Tillman, et al., 1989).

Kesiut Village is an agrarian village that has potential, and a village that still maintains local wisdom and traditions, so most of its livelihood is dependent on nature and sustainable activities. The village is located in Kerambitan District, Tabanan Regency, Bali Province. Kesiut Village is located in a lowland at an altitude of 200 m above sea level, not hilly with clay clay structured soil. The area of this village reaches 184 ha which consists of 7.35 ha of yard land, 722 ha of rice fields, 19.5 ha of Tegalan. Kesiut Village is located in the Kerambitan District, Tabanan. Most of the livelihood of the community consists of farmers, some common livelihoods in Kesiut village, farming and plantations, and the majority of Kesiut villagers depend on agriculture for their livelihood (Djagra dan Budiarta, 1990).

The fertile soil in the Kerambitan area allows farmers to grow various commodities, such as rice, corn, and vegetables. In addition, some residents are also involved in plantations such as coffee, coconut, and cocoa. Livestock, such as Balinese cattle, goats, and chickens that are widely cultivated, is also one of the sources of income. The products of these farms, such as meat and milk, are sold in traditional markets. Kesiut Village is located in the north of Penebel District, the east of Penebel District, the south of Batuaji Village, and the west of Timpag Village. The population of Kesiut Village is 2,190, consisting of 1,081 men and 1,109 women. Overall, the excellence of Kesiut Village lies in the optimal use of natural resources and preservation of local wisdom, which is supported by various community empowerment programs. Various empowerment programs have been implemented, including counseling and training in agriculture, livestock, and health. . These programs aim to improve community knowledge and skills for optimally managing local potential. One of these is the use of forage or agricultural waste as a local resource for Balinese cattle feed. Balinese cattle are native to Indonesia have distinctive characteristics and are different from cattle in other nations. The advantages of Balinese cattle over other cattle are that they have very high adaptability to poor environments (Djagra et al., 1994), such as the ability to utilize low-quality feed (Hardjosubroto,1994), excellent fertility and conception rate, high positive heterosis in crosses, good quality meat with low fat content (approximately 4%) and resistance to internal and external parasites. In addition, Balinese cattle have a high reproductive potential, high carcass weight, easy fattening and easy adaptation to new environments; therefore, they are known as pioneer cattle. The weight gain of Balinese cows reached 760 g/day/head when the ration was supplemented with concentrates.It can reach 900 g/day with the provision of complete rations in the form of wafer-based urea ammonia rice straw supplemented with S and Zn minerals (Pane,1991). The average body weight gain of Balinese cows fed field grass without being given additional feed is 175.8 grams/day, but the rate of daily body weight gain increases if given an additional concentrate of 1.8% of body weight, which reaches 313.9 grams/day. Providing good nutrition along with management strategies can increase the productivity of Balinese cattle. Suitable and correct feed formulation is also needed to raise cattle for example by providing

fermented feed, in addition to being durable, it can also be durable, and feed difficulties in the dry season can be overcome by the fermentation method. Feeding with fermentation technology can increase body weight and quality as well as the growth of Balinese cattle. In feeding ruminant livestock, Balinese cattle need 60% forage and 40% legume with additional feed with a crude protein content of 14-16%. As much as 0.5-1kg/day of concentrated feed can be replaced from tubers or tofu pulp or industrial waste that has been fertilized. Feeding Balinese cattle is based on dry matter of 3.5% of body weight or 10-12% in the form of fresh weight (Budiarta,2014; Tonga et al., 2023; Ismadi et al., 2022).

In Kesiut Village, the availability of animal feed is adequate in the dry or rainy season and can even exceed the needs of livestock. Feed materials are sourced from forage and agricultural waste such as straw, cassava plant waste, peanut plant waste, corn tree waste, and so on. In the Amerta Sari Livestock Group, Kesiut Village has experienced problems for many years, namely 1). Lack of knowledge of livestock farmers in formulating feed for livestock and 2). Lack of knowledge in making complete feed with fermentation techniques that can be used as food reserves in the dry season. This complete feed can be made during the rainy season when agricultural inputs are abundantly available. At that time the availability of feed was high. Farmers hope to be given knowledge about the right feed processing technology so that they can increase the shelf life and quality of available feed ingredients. 4). There is no availability of adequate equipment to provide complete feed. 5) Lack of knowledge among farmers and breeders about the types of forage that can be used in the maintenance of livestock, especially cattle.

Figure 1. The current condition in Ternak Amerta Sari Grup

## METHOD

The method of implementing activities in the Amerta Sari Livestock Group in Kesiut Village is as follows

1. Interview and discussion methods to be able to find out the problems experienced by partners.
2. Face-to-face methods and providing training so that partners can gain knowledge about local resources that can be used as Balinese cattle feed and how to make feed fermentation.

3. Direct practice, guided by instructors who are competent in their fields, so that partners can apply the technology provided and handle problems in product processing and business management.

## RESULTS AND DISCUSSION

The community service activity, held on July 14, 2025, at the Amerta Sari Livestock Group in Kesiut Village, went smoothly and received positive responses from partners. During the activity, the community service team successfully improved the knowledge and skills of the group members in processing and preserving locally sourced animal feed. The training covered identifying local feed ingredients, fermentation and silage-making techniques, and developing balanced feed formulations. Twelve group members actively participated in the training and hands-on practice, demonstrating a significant increase in understanding based on the pre- and post-test results. Partner,s knowledge increased from 20% to 85%.

The practical activity took place at a group member's farm, where participants directly practiced making silage from agricultural waste such as peanut straw, corn straw, cassava stover, and fermented rice harvest waste. The fermented feed product was then tested on the farmer's Bali cattle, and the initial results showed that the cattle maintained a good appetite and stable body condition.

Local resources such as fermented feed ingredients play a strategic role in supporting animal feed self-sufficiency. Utilizing local ingredients not only reduces dependence on commercial feed but also provides a solution for processing abundant but underutilized agricultural waste and agro-industrial byproducts. Some commonly used local resources include rice straw, green leaves (such as elephant grass and local legumes), corn crop waste, cocoa hulls, rice bran, and tofu dregs (Amni et al., 2024). These ingredients can be fermented to increase their nutritional content and digestibility, while reducing anti-nutritional substances that can potentially disrupt cattle digestion (Muwakhid et al., 2023).

Fermented feed is animal feed (especially ruminants) made from green or agricultural waste processed through microbial fermentation under anaerobic conditions to increase digestibility, reduce anti-nutritional substances, extend shelf life, and enhance nutritional value (Badarina et al., 2022). Microorganisms can break down cellulose, hemicellulose, and lignin, as well as non-nutritional substances such as tannins and saponins, thereby improving digestibility. Fermentation lowers pH, inhibits pathogenic microbes, improves aroma, and preserves green fodder such that it can be used during the lean season (Akhbar et al., 2021).

Several group members have begun to implement thise technique independently, even establishing a self-sufficient silage processing unit. Furthermore, partners have begun to change their feed management practices, shifting from traditional to more planned methods with simple recording and monitoring. Overall, this activity has had a positive impact on partner groups, both in terms of increased technical capacity and motivation to manage their livestock businesses more efficiently and sustainably. Partners expressed enthusiasm for continuing to develop this feed

preservation technique and planned to make it a long-term group program. This activity also raised awareness among the group members about the importance of utilizing local resources to increase the independence and sustainability of their livestock businesses.

Figure 2. Activity documentation

## CONCLUSION

The community service activities carried out by the Amerta Sari Livestock Group in Kesiut Village have successfully achieved their planned objectives. Through training and mentoring, partners were able to understand and practice feed preservation and processing technologies based on local resources such as straw, pigeon pea leaves, and other agricultural waste. The adoption of fermentation and silage technologies demonstrated that these simple and effective innovations are highly relevant to partners' needs, particularly in addressing feed shortages during the dry season. Increased knowledge, technical skills, and changes in feed management are positive indicators of tangible impact of this activity in improving the efficiency and productivity of Bali cattle farming at the group level. In addition to the technical benefits, this activity fostered a spirit of independence, collaboration, and awareness of the importance of sustainably managing local potential.

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**Conflict of Interest declaration**

The authors declare that they have no conflicts of interest related to the research, authorship, or publication of this article.

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