Community Empowerment through Manure Processing Practices as an Effort to Utilize Livestock Waste in Batunilamung Village Kajang District Bulukumba Regency

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ABSTRACT

Livestock waste especially animal manure is an organic matter resource that may serve as a fertilizer to help support farming practices. However, there is much room to enhance how the public uses livestock waste via increased education on the process of making it. This program is intended to give power to the people of Batunilamung Village, Kajang District, Bulukumba Regency, by practicing processing animal manure to make it a more useful organic fertilizer. The implementation plan includes providing training on educational topics, practicing manure processing, and providing support to the community. The practice used local resources, especially animal manure, to create manure fertilizer through mixing and composting to be ready for application. The practice of processing animal manure showed that it would increase the community's knowledge and skill in handling livestock waste. Additionally, this program increased the community's understanding of why managing organic waste is important and how using it as a source of fertilizer can improve soil fertility and decrease waste in the environment.

1. Introduction

The majority of the economic activity within the Regency of Bulukumba is supported by the agricultural sector. The improvement made in the agricultural sector has provided Bulukumba Regency with the ability to generate a maximum amount of income and also to contribute significantly to increasing the GRDP of the Regency. During the seven-year time frame of 2010 through 2016, the agricultural sector continued to be the main contributor to the Regency's economy, although there were some fluctuations during that period in terms of the agricultural sector contributing to accelerating the growth of the GRDP of Bulukumba Regency. Batunilamung Village is situated in the Kajang District of Bulukumba Regency. The rural community of Batunilamung Village has a strong connection to agricultural activity and using natural resources as a part of their economic existence. Therefore, this setting allows for the integration of agricultural development and livestock farming; for example, through the use of by-products and waste from livestock operations to enhance agricultural activity. Additionally, the socio-economic status of the Kajang District community demonstrates how important the agricultural sector is to the daily lives of people living in that district (Anwar & Nursini, 2018).

Manure from animals is a by-product of livestock production, including processing plants and similar facilities. The average daily output of manure by each animal in a beef operation will be about 12% of its body weight. Manure is composed of several different types of chemical compounds, including ammonia (NH3), ammonium (NH4+), etc. Without proper management, the chemicals contained within the manure may lead to environmental contamination. Proper management of waste from livestock will help support the sustainability of the operation of cattle farms, which are aligned with the principles of sustainable development. Livestock waste contains many of the same nutrients as what would be found in the soil. Manure can also function as an organic fertilizer, offering large quantities of essential nutrients like phosphorus and potassium. Each individual cow can generate up to 8-10 kg of manure every single day or 2.6-3.6 tons per year and using that as an organic fertilizer can decrease the dependency on inorganic or chemical fertilizers (Sukamta et al., 2017).

The management of agricultural and livestock production in Batunilamung Village, Kajang District, has shown that there is a potential to generate organic waste, including livestock manure. Organic waste generated by agricultural and livestock production is a significant issue in many parts of the world. Organic waste, if not properly managed, can result in environmental degradation. However, organic waste can be converted into organic fertilizer by composting. Organic fertilizer is beneficial to both the soil and the crop. Community service activities in Batu Mila Village, South Sulawesi, have also demonstrated that the utilize-less organic waste (Livestock Manure) can be processed into organic fertilizer through public education and training programs. The purpose of these programs was to increase public awareness regarding the utilization of local resources as a substitute for organic fertilizers (Fadhil & Darmawan, 2024).

The main problem that the community of Batunilamung Village faces is the inadequate application of livestock waste especially manure in providing organic matter for agricultural use. Although the waste produced by livestock farming has the possibility of being processed

into manure fertilizer, the poor management of the waste will result in the waste accumulating at rearing locations and will not create additional benefits for the community. One reason why the use of manure is so inadequate is due to the lack of knowledge and skill of the community in relation to manure processing techniques. In general, residents know that livestock manure can be used as fertilizer; however, they need to enhance their knowledge of the processing steps, materials to mix, composting methods, and the features of completely mature manure. In addition to lacking knowledge about how to properly process manure, many times residents will either apply raw manure immediately or let it accumulate instead of applying appropriate processing (Sundari et al., 2025).

To solve these problems, we will use education and experience with hands-on practice in processing animal waste to empower communities. Our approach is based upon active participation; therefore, not only will community members receive education, but they will have the opportunity to develop practical experience with processing the animal waste that exists within their community. This process has three main steps: providing information, practical experience in processing animal waste, and continuous support. During the informational portion, participants will receive education regarding the possible uses of animal waste, the advantages of using manure, how to compost organic waste, and why it is essential to manage organic waste. After receiving this education, community members will participate in hands-on practice to better understand how to process animal waste (Santoso et al., 2023). In addition to transforming what was once unused animal waste into an organic fertilizer for use in growing crops locally, we plan to increase community knowledge and skills in independently managing their animal waste.

2. Method

This community service program was implemented by UINAM KKN Batch 79 students of post 8, Batunilamung Village on Saturday, September 9, 2026, from 10:00 AM until 12:30 PM WIB. This program was located at the Batunilamung Village office in Kajang District, Bulukumba Regency. This program used a method that included presenting information, practicing processing manure with hands-on practice, and providing guidance to the local community. There were three phases of this implementation as follows.

Preparation Stage: Students made preparations for all equipment and materials needed for the compost demonstration. In order to expand the students' knowledge about manure, they brought in an expert speaker, Mr. Bahrul, S.Si. to explain how to produce and process manure into organic fertilizer through a semi-organic composting process. Evaluation Stage: Evaluations of the program were based upon observation sheet assessments of student/participant participation in activities; whether participants understood each step involved in producing compost; and if participants could independently produce compost.

Photographic documentation provided additional evidence for evaluation purposes. Observation data collected were analysed descriptively-qualitatively, includes describing the level of student/participant engagement, understanding of the composting process, and ability to produce compost. Success of the program was demonstrated through high levels of participation by the local community and the participants' successful completion of the composting process.



Figure 1. The Illustration of Student Community Service Program

3. Results and Discussion

The activities that involved processing manure in Batunilamung Village, Kajang District, Bulukumba Regency, was done to use up livestock waste produced by the community. It started with a presentation which defined manure, explained the advantages of organic fertilizers, discussed what could happen if livestock waste wasn't properly managed, and then provided steps on how to process livestock waste into fertilizer for plants.

The use of community service and training for processing livestock manure into organic fertilizer (Compost) is motivated by the importance of switching from using chemical fertilizers to using compost. This initiative also addresses the immediate need to minimize environmental pollution caused by waste. In addition, there are less operational costs associated with compost than with chemical fertilizers. Observations made in Batunilamung Village showed that there were some chicken farmers in the area, although they were few in number, the long-term accumulation of untreated chicken manure could create serious problems.

The training of processing manure in Batunilamung Village was attended by youth organization representatives (karang taruna), community leaders, figures in education, custom, hamlet head, farmer group leader and other farmers. The response of the participants regarding the training is positive, and it is expected to continue with similar programs. The speaker who presented at the training was Mr. Bahrul Hidayat, S.Si., who focused on the process of manure processing through the composting method. After the presentation, a practical demonstration took place where all participants were involved. The result of the practical demonstration produced about 30 kg of solid manure compost.

Table 1. Brief Summary of The Student Community Service Program

Components	Description
Participant's	Youth Organization members, community leaders, education figures, traditional leaders, hamlet heads from across Batunilamung, heads of farmer groups from across Batunilamung, and farmers.

Components	Description
Method	Delivery of material, practical training on manure processing, and community mentoring
Output	The community can utilize livestock waste to create products of higher value. Awareness is growing regarding the importance of reducing the use of chemical fertilizers and the ability to process manure into compost.
Challenges & Solution	Challenge: Youth enthusiasm remains low; event publicity is not widespread enough. Solution: Widespread publicity for the event needs to be carried out.
Benefiting Factor	Farmers are struggling to meet their fertilizer needs, while there is an urgent need to reduce the use of chemical fertilizers that contain environmentally polluting waste.
Recommendation	There is a need for awareness regarding the processing of livestock manure to add value and reduce its accumulation.

Sources: Prepared By The Authors



Figure 2. Student Community Service Program Documentation

Unmanaged livestock manure can cause unpleasant odors and degrade the cleanliness of the surrounding environment. However, when processed through composting or fermentation, livestock manure can be used as organic fertilizer. The project in Batunilamung Village is consistent with community service projects carried out in various areas of Indonesia. Ratriyanto et al provided training to produce organic fertilizer from livestock manure in Kaliboto Village, Karanganyar. According to Ratriyanto et al., the use of livestock manure as

organic fertilizer provides a green alternative that improves soil productivity (Ratriyanto et al., 2019). By promoting the shift to organic fertilizers, the community indirectly participates in efforts to reduce environmental pollution and contributes to realizing the concept of green marketing (Marina et al., 2021). Furthermore, the economic value of livestock waste previously a business cost burden can be enhanced.

4. Conclusion

The processing of animal manure in Batunilamung Village, Kajang Sub-district, Bulukumba District has been completed; there were two main parts to the activity: a presentation about composting and a hands-on composting of animal manure. This is part of the overall effort to use locally available animal waste products and promote the use of organic fertilizers as alternatives to chemical fertilizers to enhance agricultural productivity. There appears to be a good response to the training program among participants, who included members of the Karang Taruna youth organization, community leaders, teachers, traditional elders, hamlet heads, members of farmer organizations, and individual farmers. Therefore, the processing of animal manure in Batunilamung Village is an example of community empowerment based on local potential, namely, reducing animal waste products and generating organic fertilizer for agricultural production.

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