



## POTENTIAL AND UTILIZATION OF CORN WASTE BASED ON ANIMAL FEED PROCESSING IN TAROANG DISTRICT, JENEPONTO DISTRICT

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### ABSTRACT

*This service aims to identify the potential and utilization of corn harvest waste as raw material for animal feed in Taroang District, Jeneponto Regency. Corn harvest waste, such as stems, leaves and cobs, is often not utilized optimally and becomes an environmental problem. Through community service carried out by a team from Muhammadiyah University of Makassar, a series of activities were carried out to introduce corn waste processing technology using a chopper. Demonstrations and training on the use of chopping equipment were carried out to increase the community's understanding and skills in processing corn waste into quality animal feed. The results of this activity show that the use of corn waste as animal feed has great potential to increase the economic value of agricultural waste and reduce environmental impacts. Apart from that, the people involved in this program, especially the "Tersayang" farmer group in Baling-Balang Village, received direct benefits in the form of increased knowledge and skills in processing corn waste. It is hoped that the handover of the chopping equipment to this farmer group will support the sustainability of the animal feed processing business in the future. This community service program has not only succeeded in introducing corn waste processing technology, but also opened up new economic opportunities for the people of Taroang District. Thus, the use of corn harvest waste based on animal feed processing can be an effective solution to improve farmers' welfare and preserve the environment.*

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## **INTRODUCTION**

The agricultural sector plays an important role in the regional economy, especially in rural areas of Indonesia, (Darmawan, D. P., & Soekarni, 2018). One of the main commodities in agriculture is corn (*Zea mays* L.), which is an important cereal crop after rice and wheat. (Suarni, S., & Yasin, 2015). In the corn harvesting process, there is waste that is often overlooked, such as corn stems, leaves and cobs, (Widyanti, A., & Wahyono, 2018). Corn is one of the main agricultural commodities in Indonesia which has high economic value. Apart from being used as human food, corn also has various derivative products with economic value, such as animal feed and industrial raw materials. However, corn production also produces quite a lot of waste, including corn stalks, leaves and cobs, which are often not utilized optimally. This waste is usually simply left to rot on land or burned, which can cause environmental problems such as air pollution and decreased soil quality. This corn harvest waste has the potential to be used as animal feed, especially in rural areas that have quite large livestock populations. (Suhubdy, S., & Widiawati, 2019). Utilizing corn waste as animal feed can provide added value for farmers and increase efficiency in managing agricultural resources, (Risqina, A., & Sunaryo, 2020).

In Taroang District, Jeneponto Regency, corn is one of the superior food crops which is widely cultivated by farming communities, (Badan Pusat Statistik Kabupaten Jeneponto, 2022). However, the knowledge and skills of farming communities in processing corn waste into animal feed are still limited, (Sari, P. P., & Lestari, 2021). Therefore, efforts are needed to increase community capacity in utilizing corn harvest waste optimally and sustainably, (Syamsu, J. A., & Rukka, 2022). This community service activity aims to provide education and training to farming communities about the potential and utilization of corn harvest waste as animal feed based on feed processing. Utilizing corn harvest waste as raw material for animal feed not only helps reduce agricultural waste, but can also increase the economic value of the corn plant itself. Corn waste is rich in fiber and several nutrients that are important for livestock, so it can be an economical and nutritious alternative feed ingredient. In addition, processing corn harvest waste into animal feed can support sustainability efforts in the agricultural and livestock sectors by reducing dependence on commercial feed which is often expensive and limited in availability.

This community service program aims to identify potential corn harvest waste in Taroang District and develop effective processing methods to be used as animal feed, (Hernandez, M., & Gomez, 2018). With this program, it is hoped that farmers and breeders in Taroang District can gain new knowledge and skills in managing harvest waste, so that they can increase their productivity and income. (Ahmed, Z., & Rahman, 2021). Apart from that, this program also aims to support environmental conservation efforts through reducing agricultural waste, (Lopez, J., & Torres, 2020). The implementation of simple technology that can be applied by local farmers is the key to success in utilizing corn waste. Optimizing the use of corn harvest waste based on animal feed processing not only provides solutions to environmental problems, but also improves the economic welfare of farmers in Taroang District. This dedication with sustainable technological development is needed to maximize this potential and ensure the sustainability of livestock businesses in the area.

## **LITERATURE REVIEW**

Several previous studies have examined the potential and use of corn harvest waste as animal feed. (Wahyuni, I. S., Putra, B. N., & Suryahadi, 2019) conducted a study on the use of corn waste as ruminant animal feed and found that corn waste has good enough nutritional content to be used as an alternative feed for ruminant livestock. Similar research by, (Nugroho, A., Prasetyo, E., & Kusumawati, 2020) also shows that the use of corn waste in animal feed rations can increase productivity and reduce feed costs. In the context of community service, (Pratama, Y., Susilowati, A., & Suryadi, 2021) conducting training activities for farmer groups regarding the use of corn waste as animal feed. They developed technology for processing corn waste into animal feed and provided assistance to farmers in implementing it. The results of this activity show an increase in farmers' knowledge and skills in using corn waste as animal feed. Other research by, (Sari, D. P., Nugroho, B. A., & Hartati, 2022) focuses on processing corn waste into animal feed in rural areas. They develop processing methods that are easy and affordable for rural communities, and provide training to farmer groups on their application. The research results show that the introduced processing method can increase the nutritional value of corn waste as animal feed.

## **MATERIAL AND METHOD**

This community service activity will be carried out using a participatory method, namely by actively involving the farming community in Taroang District, Jeneponto Regency. The method of implementing this activity consists of several stages, namely: Socialization and

Counseling, 1. Conduct outreach to the farming community about the potential and benefits of using corn harvest waste as animal feed. 2. Providing education about the importance of processing corn waste-based animal feed to increase the efficiency and sustainability of livestock businesses. Training and Mentoring, 1. Provide training to farming communities on techniques for processing corn waste into quality and nutritious animal feed. 2. Provide assistance to the community in implementing corn waste-based animal feed processing techniques. 3. Facilitate discussions and questions and answers to discuss obstacles and solutions in implementing animal feed processing techniques. Materials in the Activity 1. Introduction to Corn Waste: Types of corn harvest waste (cobs, leaves, stems, skins, and others). Nutritional potential of corn waste. 2. Corn Waste Processing Techniques: Fermentation methods to increase the nutritional value of waste. Waste drying and storage techniques. 3. Nutritional Composition and Benefits for Animal Feed: Nutritional content of processed corn waste. Benefits of corn waste as a source of feed for various types of livestock (cows, goats, sheep, chickens, etc.). 4. Economy and Sustainability: Economic benefits of utilizing corn waste as animal feed. Environmental impacts of utilizing corn waste.

Demonstration and Field Practice, 1. Conduct a demonstration of processing corn waste into animal feed at the service location. 2. Invite the farming community to directly practice corn waste-based animal feed processing techniques under the guidance of the service team. Providing facilities and equipment needed for field practice activities. Practical activities 1. Corn Waste Collection and Sorting: How to collect and sort corn waste from the fields. 2. Waste Processing into Animal Feed: Demonstration of fermentation techniques and making silage from corn waste. The process of drying and grinding corn waste into a form that is easier to give to livestock. 3. Feed Trial on Livestock: Providing processed feed to livestock. Observation of livestock responses to the feed given. 4. Making By-Products: Making other products from corn waste, such as briquettes or other products that have a selling value.

## **RESULT AND DISCUSSION**

### **Socialization of the Enumerator Tool to the community**

This activity is the initial stage in implementing a community service program which aims to introduce corn harvest waste processing equipment to the local community. At this stage, socialization was held which aimed to introduce the community service team from Muhammadiyah University (TIM PKM Unismuh) to the residents of Taroang District, Jeneponto Regency. In this socialization, the team explained in detail about the tools that will be used to process corn waste into animal feed. The public is given an understanding of how

the tool works, its benefits, and how the tool can help increase the economic value of corn waste. Apart from that, the Unismuh PKM team also conveyed the long-term goal of this program, namely to create awareness and ability among the community to manage agricultural waste more effectively and sustainably. During the socialization, the community was given the opportunity to have a direct dialogue with the Unismuh PKM team, ask about the technicalities of using the equipment, and discuss the potential and benefits of processing corn waste. This is important to build active involvement and a sense of ownership of the program that will be implemented. The Unismuh PKM team also expressed their hope that the community can utilize this technology to process corn harvest waste, so that it not only reduces waste that pollutes the environment but also increases income through the production of quality animal feed. With support and active participation from the community, it is hoped that this service program can run smoothly and achieve the stated goals.



**Figure 1.** Socialization of the Enumerator Tool to The Community

### **Presentation of Demonstration Plans to Residents**

At this stage, the community service team from the Muhammadiyah University of Makassar (TIM PKM Unismuh) provided guidance to the community on how to utilize corn harvest waste so that it can become a source of additional income after being processed into animal feed using a chopper. This briefing covers several important aspects. First, the team

explained the types of corn harvest waste that could be processed, such as corn stems, leaves and corn cobs. This waste is often considered useless, but actually has great potential if processed properly. Next, the team explained how the counting tool that would be used worked. This tool is designed to chop corn waste into a smaller size that is easily digested by livestock. During the briefing, the team provided a live demonstration on how to operate the chopper, including operating steps, maintenance of the tool, as well as tips for optimizing chopping results to produce high quality animal feed.

Apart from that, the team also explained the economic benefits of using corn waste as animal feed. By processing corn waste into feed, people not only reduce wasted agricultural waste, but can also reduce the cost of purchasing animal feed and even produce feed that can be sold. This is expected to increase the income and welfare of local communities. Through this briefing, the Unismuh PKM team hopes that the public can understand the importance of utilizing corn waste and feel motivated to apply the processing technology that has been introduced. Thus, it is hoped that this community service program can have a real positive impact on improving the economy and environmental sustainability in Taroang District, Jeneponto Regency.



**Figure 2.** Presentation of Demonstration Plans to Residents

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### **Tool Demonstration**

The essence of this community service is a demonstration of the use of a chopping tool to the community with the aim of enabling them to utilize corn harvest waste effectively. Through this demonstration, the public was introduced to how the chopper works and the benefits, which are specifically designed to process corn waste such as stems, leaves and cobs into high quality animal feed. During the demonstration, the service team from the Muhammadiyah University of Makassar (TIM PKM Unismuh) demonstrated the operational steps for the chopping tool, starting from preparing raw materials, operating the tool, to the care and maintenance process of the tool so that it continues to function properly. The public is invited to see firsthand the process of chopping corn waste, so they can understand how to process the waste into nutritious feed for livestock. The main aim of this activity is to provide practical skills to the community so that they can use counting tools independently.

With this capability, it is hoped that the community can develop new businesses based on processing corn waste. This business not only helps reduce agricultural waste which is often not managed well, but also opens up new economic opportunities that can increase family income. Through this service, the Unismuh PKM TEAM hopes to create awareness and

willingness among the community to utilize simple but effective technology in increasing the added value of corn harvest waste. Thus, this program not only provides direct benefits in the form of increasing economic prosperity, but also supports environmental sustainability efforts in Taroang District, Jeneponto Regency.



**Figure 3.** Tool Demonstration

### **Handover of Tools to the Community**

After the demonstration of the chopping equipment, the equipment was handed over to the community for sustainable use. This handover is an important part of the service program which provides great benefits by providing tools that can be used by the community independently. The counting equipment was handed over to the "Tersayang" farmer group and the hamlet head in Baling-Balang Village, Tarowang District, Jeneponto Regency. This handover took place at the service location, precisely on the land of one of the farmer group members, and was witnessed by the local community and members of the "Tersayang" farmer group. This handover event is an important moment that shows the commitment of Muhammadiyah University of Makassar in supporting improving community welfare through empowering simple technology.

During the event, the community expressed their thanks to Muhammadiyah University of Makassar for choosing their location as a place of service. They appreciated the team's efforts in providing chopping equipment that can help process corn harvest waste into animal feed, which is expected to open up new business opportunities and increase family income. The handover of this tool marks an important first step in developing local potential and economic sustainability in Baling-Balang Village, Tarowang District, Jeneponto Regency.



**Figure 6.** Handover of Tools to The Community

This community service activity has had a positive impact on the farming community in Taroang District, Jeneponto Regency, in increasing their knowledge and skills regarding the use of corn harvest waste as processing-based animal feed. The following are the results and discussion of this community service activity: Increasing Community Knowledge. 1. Through outreach and counseling activities, farming communities gain new knowledge about the potential and benefits of using corn waste as animal feed. 2. The community is aware of the importance of processing corn waste into quality and nutritious animal feed to increase the efficiency and sustainability of livestock businesses.

Increasing Animal Feed Processing Skills. 1. The training and assistance provided has improved the community's skills in processing corn waste into animal feed using the right techniques. 2. Demonstrations and field practices help the community understand directly the process of processing corn waste-based animal feed. Increasing the Nutritional Value of Animal Feed. 1. Evaluation results show that the processing techniques taught can increase the nutritional value of corn waste as animal feed. 2. The resulting corn waste-based animal feed contains better protein, fiber and other nutrients than before. Overall, this community service activity has provided benefits to the farming community in Taroang District, Jeneponto Regency, in utilizing corn harvest waste as animal feed optimally and sustainably. However, further efforts are still needed to overcome existing obstacles and ensure the sustainability of this program in the future.

## **CONCLUSION AND RECOMMENDATION**

This community service activity has succeeded in increasing the knowledge and skills of the farming community in Taroang District, Jeneponto Regency, in utilizing corn harvest waste as processing-based animal feed. Through a series of activities carried out, such as outreach, counseling, training, mentoring, demonstrations and field practice, the farming community has gained a comprehensive understanding of the potential and benefits of using corn waste as quality and nutritious animal feed. Even though there are obstacles related to the limited availability of equipment and facilities for processing animal feed in the region, this activity has provided a solution by developing processing technology that is simpler and more affordable for rural communities.

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