

Instilling Utilization Of Fermentation Of Corn Cob Waste For Animal Feed By “Mesa Pau” Farmers Group In Ihing Village

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Abstract: One of the activities carried out is to take advantage of the potential in the village so that it can be a solution for villagers, namely the use of corncob waste to become animal feed with economic value. The method used in this activity is through direct training to the Mesa Pau Farmers' group, namely the socialization, processing, and utilization of corncob-fermented feed products. The aim of implementing this program is to provide a medium for managing the potential of Ihing village, namely by conducting training for the Mesa Pau Farmers Group so that they can develop the potential of corncob waste to become animal feed. Implementation of this activity includes; the production process starting from grinding/chopping, fermentation, and use, and the packaging process for packaging and marketing which is carried out conventionally and through e-commerce. The results of this activity are to produce animal feed from fermented weevil waste which can later be used for the personal needs of village breeders and sold to other areas, especially in the Polewali Mandar district.

Abstract: Penelitian ini Salah satu kegiatan yang dilakukan ialah dengan memanfaatkan potensi yang ada di desa agar dapat menjadi solutif bagi warga desa yakni pemanfaatan limbah bonggol jagung menjadi pakan ternak bernilai ekonomis. Metode yang digunakan dalam kegitan ini ialah melalui pelatihan langsung kepada kelompok Tani Mesa Pau yakni dengan tahap Sosialisasi, pengolahan dan pemanfaatan hasil pakan fermentasi bonggol jagung. Tujuan pelaksanaan program ini adalah menyediakan media untuk pengelolaan potensi yang dimiliki desa Ihing yakni dengan melakukan pelatihan kepada Kelompok Tani Mesa Pau agar dapat mengembangkan potensi limbah bonggol jagung menjadi pakan ternak. Pelaksanaan kegiatan ini meliputi; proses produksi mulai dari penghalusan/pencacahan, fermentasi dan penggunaan, proses packaging untuk pengemasan dan pemasaran yang dilakukan secara konvensional dan melalui e-commerce. Adapun Hasil dari kegiatan ini ialah menghasilkan pakan ternak hasil fermentasi limbah bonggol yang nantinya dapat digunakan untuk kebutuhan pribadi peternak warga desa dan dapat dijual ke daerah lain khususnya di kabupaten Polewali Mandar.



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INTRODUCTION

Indonesia is an agricultural country that has a variety of agricultural products ranging from rice, cassava, corn, and a number of other agricultural products which are very important

for the national industry in 2011, organic waste reached 70%, while nonorganic waste reached 30%. One of the organic wastes in Indonesia is corn cobs. Corn cob waste in terms of productivity per hectare occupies the lowest place compared to other agricultural wastes. However, due to the wide area of the corn crop and the relatively short age of the plants (75-120 days after planting), the harvest can be obtained several times a year, resulting in less production and total waste. quite balanced with other agricultural waste except for rice. The remaining processing of the corn agricultural industry will produce waste in the form of corn cobs, the amount of which will continue to increase along with an increase in production capacity (Mahardika and Dewi, 2014 in Chairunnisa, 2018).

Ihing Village is one of the villages located in Bulo District, Polewali Mandar Regency. Ihing village was formed in 2009 which was the result of the division from Bulo village. Situated at an altitude of 400 to 1,200 meters above sea level, of course, Ihing Village is one of the villages where the majority of the area is used for gardening. With unspoiled topographical conditions, Ihing Village, like other villages, has two seasons, namely the dry season and the rainy season. Ihing Village is divided into 4 hamlets namely: Tatamu, Bakkola, Ihing 1 and Ihing. The economic situation of Ihing Village is dominated by the plantation, agriculture, and animal husbandry sectors.

With a population of 244 heads of households, in general, the people of Ihing Village work as farmers, farm laborers, freelance daily laborers, independent breeders, and private workers. As for some of the potential at the community level of Ihing Village, namely

in the livestock sector, most of the Ihing Village community makes cattle farming an independent private business. Meanwhile, in the field of agriculture and plantations, Ihing village is engaged in fruit agro-tourism, such as durian, coffee, pepper, cocoa, and corn. In recent years, the people of Ihing village have made corn their main commodity because the time needed from planting to harvest is around 3-4 months with sufficient maximum income. This can also be seen in the plantation area of Ihing Village, where around 45 percent of it is used to grow corn. To maximize yields, the farmers of Ihing Village formed a forum to mutually strengthen cooperation among fellow farmers, namely the Mesa Pau Farmers Group (KTMP).

The need for ruminant livestock is getting higher, forcing breeders to be more innovative in providing forage for livestock. To anticipate the coming dry season and forage will be increasingly difficult to find, farmers are looking for a solution by making animal feed using unused agricultural wastes. So that the difficulty of finding animal feed ingredients during the dry season is no longer an obstacle for breeders (Yulianto, 2010). One of the resources that are not limited throughout the year is the use of animal feed from corn plants, in this case, corn cobs.

From the description above, it can be seen that the main problem is when the dry season arrives. The forage available is inadequate both in terms of quantity and quality. Even in certain areas the fodder grass will dry and die, causing a crisis of forage (Dewanto, et al., 2017). In livestock, people usually use forage grass as the main ingredient for animal feed. One of the obstacles from nature, namely during the dry season.

Forage grass growth is disrupted, so the forage available is lacking both in terms of quantity and quality (Semaun & Novieta, 2016). Even in certain areas the fodder grass will dry and die, causing a crisis of forage. In addition, the ruminant livestock rearing system is still largely dependent on forage in the form of grasses. In addition to being used for privately owned animal feed needs, animal feed products from corn cobs will later be processed and developed so that they become an economic value for KTMP. With the support of all available resources and potential, the management of ruminant feed was used by KTMP as a new business opportunity in Ihing village.

METHODS

The service is carried out for 6 months (May-November 2022), consisting of area observations, assistance, goal setting, implementation, and evaluation. The composition of implementation team consists of 7 people, consisting of 3 lecturers who are tasked with making observations, surveying service locations, collecting village profile data, assisting in making animal feed, training in the use of animal feed, and compiling service reports. In the process of implementing the community service activities, 4 students will assist. In addition, it will involve several sources related to the process of making livestock feed from corn cobs of the Mesa Pau farmer group.

Time and Place of Activity

This community service program was carried out in Ihing Village, Bulo District, Polewali Mandar Regency, West Sulawesi Province. The training practice for making animal feed from corn cob waste was carried out at the Mesa Pau Farmers Group Secretariat, while the time for this community service activity program was carried out for appro-

ximately 7 months. The training participants consisted of Mesa Pau farmer groups.

Survey of Raw Materials for Implementation of Activities

Survey of activity locations The survey was carried out with the aim of determining the right place to carry out this PKM activity. Supervision of activities carried out includes animal feed ingredients, namely corn cobs, as well as locations where activities will be carried out (selection of places that are easy to reach). Negotiations with the Mesa Pau Farmer Group in Ihing village as partners in the implementation of PKM activities with the aim of determining the same schedule, place, and perception of activities. In addition, the raw material survey aims to ensure that the raw material is ready for processing, namely corn cobs. This was deemed necessary by the team because Ihing Village is one of the villages with a majority of farmers, so the team needed to ensure and prepare materials ready for processing by providing the necessary funds.

Implementation Program

The implementation of community service is carried out in 5 stages namely; Socialization activities, Demonstrations for making animal feed, Practices for making animal feed, and mentoring the use of animal feed as feed for farmer groups. The socialization stage will be carried out by the community service implementation team for farmer groups, then the degradation stage and the practice of making animal feed will be carried out by resource persons with assistance from the community service team. The process of implementing community service activities can be seen in Figure 1 below:

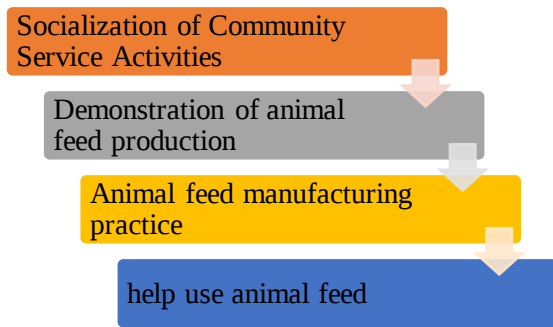


Figure 1. The process of implementing community service activities

Demonstration of Animal Feed Production

This community service activity demonstrates how to process agricultural waste in the form of corn cobs into animal feed. This is intended so that people can understand how to process it using the right dose. The team will present resource persons who are of course very experienced in providing material and providing assistance to KTMP.

Animal feed manufacturing practice

The practice of making animal feed in this activity aims to enable the community to practice directly how to process agricultural waste that has not been used before to become livestock feed. And with the aim that people can directly make their own in the future, starting from the production stage to the sales/marketing stage.

RESULTS AND DISCUSSION

Corn Cob Waste in Ihing Village

As one of the villages that has potential in agriculture, Ihing Village has a great opportunity to increase the economic income of the village community. By looking at the majority or more than 70 percent of the population of Ihing village work as farmers which of course can take advantage of various

agricultural products that already exist. One potential that can be managed is cob waste from corn plants for the manufacture of ruminant feed which can be initiated by KTMP as the prime mover.



Figure 2. Corn Cob Waste Owned by Residents of Ihing Village

Corn cobs in Ihing Village are very abundant. With the intensity of corn production per farmer reaching 6 tons per year, the waste from corn cobs is also abundant. Farmers, especially residents who are members of the KTP, so far only use corn kernels to be traded in the form of dry poultry slag feed. Meanwhile, corncob is only a waste that is not utilized. The remaining corncob waste after harvest is thrown away and generally, farmers burn it.

The processing of corncob waste is currently starting to develop. Corn cobs also have various uses, including as animal feed, as a craft material, and as an alternative fuel (Fuadona, 2017). In addition, corn cobs can also be used as a cake mix, as a drink (milk), as an alternative fuel briquette, as a substitute for plastic (bioplastic), and as a medium for mushroom breeding and cultivation (Roberto, 2019). There is potential for corncob waste to be processed into products because the amount of corncob waste in Ihing Village is currently increasing every year. But its utilization to become a product is still lacking. Then corn cob is an organic waste that has

unique characteristics and structures, thus requiring special techniques to process and assemble it. In addition, the processing of corncob waste has begun to develop, one of which is as the main ingredient for making animal feed. From what has been produced, it turns out that corncob waste has the potential to be developed into animal feed products, especially ruminants.

Mesa Pau Farmers Group

Farmer groups are groups of farmers/breeders/planters formed on the basis of similar environmental conditions and familiarity with the aim of increasing business development. Farmer groups as the main actors become one of the agricultural institutions that play an important role and become the spearhead in agricultural development. Likewise, the Ihing Village KTMP which was formed in 2008 with a total of 25 members, has become a forum for farmers to develop various activities which can certainly support improving the farmers' economy.



Figure 3. Mesa Pau Farmers Group, Ihing Village

KTMP was formed with the official deed number 02/DI/OX/2008 with the following objectives; First, the Learning Class: is a place or place for teaching and learning among members in increasing the knowledge, skills, and attitudes of members to grow and develop in trying to increase productivity, income, and prosperous life. Second, the cooperation forum is a forum for strengthening cooperation, both among members of farmer groups

and fellow farmer groups or other parties, so that farming is more efficient and able to face threats and challenges. Third, Production Unit: The farming business of each member of the group is a business unit that can be developed to achieve business economic scale while maintaining quality, quantity, and continuity or continuity of production.

As a village that has potential in agriculture, Ihing Village has a great opportunity to increase the economic income of the village community. By looking at the majority or more than 70 percent of the population of Thing village work as farmers which of course can take advantage of various agricultural products that already exist. One potential that can be managed is cob waste from corn plants for the manufacture of ruminant feed which can be initiated by KTMP as the prime mover.

Process of Making Fermentation Through Socialization

The initial stage of socialization with Mesa Pau farmer groups. In this activity, there were several points anmaterials presented, among others; The farmer groups were given material related to the benefits and potential of corncob waste, recognizing and early detecting various diseases in ruminants, then also given theoretical material on how to ferment corncobs using various suggested materials.



Figure 4. Dissemination of PKM Program Materials to the Mesa Pau Farmers group

The practice of Making Animal Feed Through Fermentation



Figure 5. Sorting Corn Cob Ingredients

The sorting of corncob waste materials is carried out with the aim of selecting better materials to continue in the fermentation process. Because the waste material is obtained from local residents' dumps, most of the corncobs cannot be used anymore because they take too long to decompose.



Figure 6. Corn Cob Drying/Drying Process

The drying process of the sorting results from corncob waste is carried out for approximately 2 days under the hot sun. The location of Iling village is above the altitude so that the sun's heat is quite good. This drying process is carried out with the aim of eliminating or reducing the water content or moisture content contained in corn cobs. If without going through the drying process, the fermented feed will not work optimally or moldy.



Figure 7. Corn Cob Fermentation Process

The process of giving this fermented material is a very important process and determines whether the fermentation results will be maximized or not. The better and more evenly distributed it is in the process, the better the end result will be. Tools and materials as well as the amount used in this fermentation activity are as follows:

Table 1. Ingredients for Corn Cob Fermentation (Per 100 kg)

NO	Materials and tools	Quantity/Volume/Unit
1	Corn cobs	100 Kilograms
2	Fermented plastics	1 pack (12 pices)
3	Vacuum Cleaners	1 piece
4	Duct tape/tape	1 piece
5	Water	10 liters
6	Probiotic Bio EM+ 100 ml	1 bottle



Figure 8. Vacuum Process/Removing Air Content in Fermented Plastics

To remove the air content in the plastic to point 0 it is necessary to do several ways. This activity is carried out in 2 ways namely; first, through the vacuum technique using a vacuum cleaner machine. This aims to facilitate the process of reducing the air content in the plastic so that the fermentation results will be maximized. Second, by manually stepping on the fermented material slowly in plastic. The goal is the same, namely to reduce the amount of air content in plastic. However, this manual



Figure 9. Final Fermentation Results

After mixing the ingredients and vacuum, the above results are the end result of the fermentation process. In this process, fermented feed ingredients are stored and allowed to stand at normal temperatures and in airtight sealed containers using duct tape for 8 weeks.

CONCLUSION

The conclusion of this activity is that the participants or farmer groups who are the main partners in this activity before participating in the training do not have an understanding of how to manage and use corncob waste. Then they don't understand that fermented animal feed ingredients can have economic value. After participating in the training, the Mesa Pau farmer group understood and knew the use and management of corncob waste with detailed material: The theory regarding the benefits of cob waste, the practice of making and processing fermented cob waste, and procedures for its application to animal feed.

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