Processing Coconut Pulp As Chicken Feed In Segah Hamlet,Asahduren Village, Pekutatan District, Jembrana Regency, Bali

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Abstract.

Coconut is one of the main products produced in Segah Hamlet, Asahduren Village, Jembrana Province, Bali. The PM-UPUD program aims to strengthen the development of farmer groups and MSMEs to strengthen agriculture-based community empowerment and livestock. The operational methods include counseling, direct practice, monitoring, and evaluation. PM-UPUD's partner farmer group is the Kusuma Dewi Farmer Women's Group based in Segah Hamlet. The challenges faced by the partners include the production of traditional tandusan oil and the management of chicken feed. Through PM-UPUD activities, farmer groups have the capacity and skills to make tandusan oil and process coconut pulp into chicken feed in an integrated and comprehensive manner. Farmer groups can now produce better tandusan oil and process coconut pulp into chicken feed. PM-UPUD activities can increase income and improve the community's welfare, especially group members..

Keywords: *Coconut, coconut pulp, feed livestock, and Tandusan oil.*

I. INTRODUCTION

Asahduren Village is located in Pekutatan District, only 75 km from the center of Bali. This village relies on agriculture. Segah Hamlet in Asahduren Village directly borders the State Forest and plantations (Perusda). Because it is located near the State Forest, the lives of the community are mostly dependent on agriculture and livestock. This group is far from the hustle and bustle and still needs to catch up in various ways because it is located near the state forest. In addition to fostering an entrepreneurial spirit, the village community still needs support to manage plantations and livestock. As a result, they need support to take additional actions that can increase yields.In Jembrana Regency, coconut (*Cocos nucifera* L.) has one of the highest yields. Plants that produce coconuts are both profitable and adaptable. Because practically all of the roots, trunks, leaves, and fruits of coconut trees can be used to meet every day needs for people, the tree is known as the "tree of life" (Yulvianti et al., 2015). Nearly every household in Asahduren Village's Segah Hamlet owns a coconut plant. Not only are young coconuts sold, but old coconuts and processed coconuts are also sold. The Segah Hamlet produces 45 liters of palm oil every week by processing coconuts. There will be waste from the preparation of the coconut. In Segah Hamlet, 234 kg of coconut waste is produced each week.In addition to agriculture, Dusun Segah also has livestock products, namely native chickens. Although chickens are excellent poultry in producing meat, the cost factor of feed, which reaches almost 80% of the total production cost, must be addressed (Saragih & Ndruma, 2020).

Cheaper and more effective alternative feed components must be applied (Kurniawan et al., 2016). The availability of quality and cheap rations is very important to increase broiler productivity. Because most broiler feed ingredients are also used by humans, their use is very competitive. Currently, the best option is to improve feed quality by using feed ingredients from agricultural and industrial waste (Yamin, 2008).One way to overcome the problem of high costs in the livestock industry is to feed livestock from agricultural waste. The use of agricultural waste as feed is supported by efforts to increase its nutritional value. Coconut waste is one of the agricultural wastes that is easily obtained and has not been used properly as a raw material for poultry feed (Hidayati, 2011). Coconut dregs produced from the manufacture of pure coconut oil

still have a high protein content, so they can be used as feed (Panjaitan, 2021). Coconut dregs from the manufacture of virgin oil with a little touch of technology will become good quality feed and have a long shelf life. The results of a survey of the Kusuma Dewi Women Farmers group showed that the traditional method of making coconut oil is inefficient, uses a lot of fuel, and takes three to four hours. Therefore, it is necessary to provide training activities on coconut oil processing technology and the management of coconut dregs from the manufacture of oil as animal feed.

II. METHODS

The planned method of implementing activities for livestock farmers in the Kusuma Dewi Women Farmers Group, Segah Hamlet, Asahduren Village, Pekutatan District, Jembrana Regency is to use:

1. Interview and discussion methods to find out the problems experienced by partners.
2. Face-to-face methods and providing training, so that partners gain knowledge about local resources that can be used as feed for Balinese cattle and how to make fermented feed.
3. Direct practice, guided by competent instructors in their fields so that partners can apply the technology provided and can handle problems in handling product processing and business management.

III. RESULTS AND DISCUSSION

As a result of the pre-operation survey, the Segah Hamlet community has not used the technology properly. During the technology transfer process, there were communication problems and it did not last long because farmers did not understand it and did not support it. In the end, technology transfer will develop and fail because its use does not take into account its effectiveness, so it cannot guarantee an increase in community income.

To produce high-quality food and feed products, traditional food processing standards must follow basic principles such as GMP (Good Manufacturing Practice), CPMB (Good Manufacturing Practice), and SSOP (Sanitation Standard Operating Procedures) (Suwitari et al., 2019). By implementing Appropriate Technology in the processing of food and feed products, the community will gain knowledge about good processing practices.

Tandusan Oil is a processed product made from cooking oil derived from old coconuts. Pure coconut oil or *Tandusan* Oil has a distinctive taste that makes food fried or mixed with it. The word from Balinese, namely "*tandusan*" means distilled to extract the oil. *Tandusan* Oil Bali is coconut oil that is traditionally made by human power (Shanti et al., 2021).

The process of making palm oil is as follows (Figure 1.)

1. Coconut Grating
   Starting from peeling the old coconut, removing the coconut flesh from the coconut shell, then grating the coconut flesh.
2. Coconut Squeezing
   The grated coconut is squeezed using a wooden squeezer. This process itself takes about an hour.
3. Cooking
   Coconut milk is made from grated coconut and then boiled in a large pan for two hours, and the heat must be high to use the dried coconut leaves and stems. The oil begins to rise as the coconut milk begins to foam.

Fig 1. Processed Tandusan Oil

Coconut pulp is the result of processing coconut into coconut milk (Sigiro et al., 2022) . Coconut pulp (*Cocos nucifera* L.) can be reused for animal feed. One of its advantages is that it contains 61% galactomannan, which consists of mannose and galactose chains, which help grow bacteria that help digestion in the intestines (Elyana, 2011). The nutrient content of coconut pulp, which includes 5.78% protein, 38.24% fat, and 15.07% crude fiber, allows it to be used as an alternative animal feed (Putri, 2010).Due to its indigestible fat content, coconut pulp is rarely used as animal feed. The fermentation process of coconut pulp is a solution to this problem (Pravitasari, 2017).

Livestock require nutrition to fulfill physiological processes in their lives, feed is one of the important components for animal growth. To increase metabolic results, which can help the development and growth of livestock, good nutritional fulfillment is needed (Biyatmoko et al., 2018).Traditionally, the production of barren oil will produce oil that becomes rancid and sour more quickly. If free-range chickens are fed coconut waste from the processing of barren oil in one day, the coconut waste will still not run out. In addition to having low nutritional quality, coconut waste from oil processing cannot be stored for long, so it needs to be fermented to increase its nutritional value. With the help of microorganism enzymes, the fermentation process allows reactions to occur in which complex compounds are converted into simpler compounds. In addition, fermentation of coconut dregs can increase the digestibility of organic and dry materials, which means increased shelf life (Kristianto, 2023).

Coconut pulp fermentation process (Figure 2)

1. Drying
   Fresh coconut dregs need to be dried before steaming.
2. Addition of Effective Microorganism-4 (EM-4)

Add EM-4 and Molasses according to the required amount. EM4 is a mixed culture of various beneficial microorganisms. Photosynthetic bacteria, lactic acid bacteria, actinomycetes, and yeast are some of them that can be used as inoculum (Islamiyati, 2014)

3. Incubation at room temperature
   For 3 weeks, the incubator was placed in a plastic bag with a thickness of 2 cm of coconut pulp and incubated at room temperature.

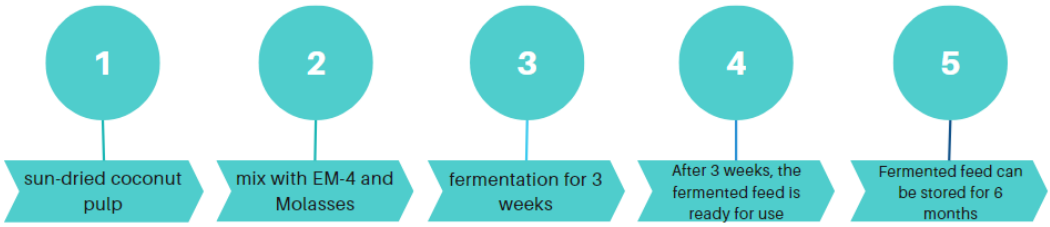

Fig 2. Fermentation Process of Coconut Pulp

The fermentation process increases the nutritional value and feed quality of fermented coconut pulp (CFCP). Comparison of the nutritional value of CFCP and CFCP including water content (5.05%; 5.25%), ash content (7.57%; 3.34%), crude protein (12.87%; 33.17%), crude fat (28.29%; 33.17%), and crude fiber (22.34%; 29.29%). Fermentation is a beneficial process that can improve the feed quality and digestibility of coconut pulp, including decreasing water content, crude fat, and crude fiber and increasing ash and crude protein content compared to unfermented coconut pulp (Fadhilah et al., 2022). After fermentation, coconut pulp experienced an increase in protein content. Fermentation of feed significantly increases the nutritional value of feed, indicating that fermentation technology can improve the use of local feed raw materials that are lacking in nutrients before being fermented into feed that can be used for livestock (Pamungkas, 2011).

Fig 3. Processed coconut pulp products

The results of the activities show that the technical knowledge, skills, and abilities of partners reached 85% and the processing techniques for fermented coconut pulp reached 95%. The results of monitoring and mentoring show that the fostered partner groups have carried out the assigned program activities, such as the fermentation process of coconut pulp to produce coconut pulp with better quality.

Fig 4. Kusuma Dewi Women Farmers Group

IV. CONCLUSION

The fermentation process of coconut pulp has been proven to be an alternative way to feed livestock. This process can not only increase the nutritional value of coconut pulp but also increase the digestibility of ruminant livestock, especially poultry so that farmers can reduce feed costs and increase their economic income. One of the additional advantages of the coconut business is that the waste produced is optimized, which can increase profits.

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