

## Utilization of Local Resources with Fermentation Technology as a Feed for Native Chickens

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### ABSTRACT

Community service is carried out to solve problems faced by the community. One of the problems local chicken farmers face is the limited quality of feed resources. Therefore, community service was provided by training on making fermented feed made from local resources as feed for native chickens. This activity was carried out in the Manuk Amerta Group, Asahduren Village, Pekutatan District, Jembrana-Bali. This activity was organized in collaboration with the Faculty of Animal Husbandry UNSRAT Manado. Training activities run well and are helpful in realizing feed independence by utilizing local potential agricultural waste. Mentoring activities are still needed for program sustainability. Fermented feed has better nutritional value and is preferred by livestock to increase livestock production.

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## **INTRODUCTION**

In the Asah Duren Village in Pekutatan Subdistrict, Jembrana Regency, most land is designated rice fields, fields, settlements, and public buildings. Asah Duren Village is one of 8 (eight) villages in Pekutatan Sub-district, Jembrana Regency, Bali Province. The distance between the provincial capital and Asahduren Village is 75 km. The area of Asahduren Village is 6.13 km<sup>2</sup> or approximately 4.73% of the total area of Pekutatan Sub-district and 0.73% of the total area of Jembrana Regency (BPS, 2019). Most of the people in Asahduren Village make their main livelihood as farmers. The total population in Asahduren Village consists of 892 families, comprising 1882 men and 1830 women. The Manuk Amerta Livestock Group is located in the Segah hamlet of Asahduren Village. As one of the hamlets directly adjacent to the State Forest, the community's main livelihood is from agriculture and livestock. The main products produced are cloves, coconuts, chocolate, and bananas. The location is relatively far from the crowd, so activities are only for the community around the area. (Anonymous, 2005).

Apart from being farmers, the people of Asahduren village also have part-time livestock farmers. Banjar Segah, Asahduren Village, has one livestock group called the Manuk Amerta livestock group. This group is in the business of raising native chickens. Free-range chickens are kept for various purposes, including as producers of meat, eggs, means of Ceremony, livelihoods, and entertainment. The increasing public awareness of health has caused the demand for native chickens to increase every year. An important factor determining a livestock business's success is the provision of quality rations with sufficient quantity. Ration costs range from 60-80% of all production costs, causing the quality of rations to be maintained and maintained. A good quality ration must meet quality requirements that include safety, health, and economic aspects. Rations are finished materials that are a mixture of several feed ingredients given to livestock to meet the needs of one day for various body functions, such as basic life, production, and reproduction. Rations contain several food substances, including water, energy, fat, protein, minerals, and vitamins (Tillman et al., 1998).

The advantage of native chickens is that they can utilize various materials available as feed. But sometimes, the feed ingredients are of low quality and digestibility. Free-range chickens are non-ruminant livestock that require low-fiber and digestible meals. It also requires crude protein for growth. Looking at the existing conditions, the widely available feed ingredients are agricultural or plant waste, which is the rest of what humans have utilized. Therefore, a little touch of technology is needed to improve the quality of existing feed ingredients and increase their digestibility value (Yaman,2010). The fermented feed applied is expected to increase native chickens' growth and reduce feed costs. In addition, the fermented feed can be stored for a long time to be used as a feed reserve when farmers are busy with various ceremonial activities.

The current need for native chickens in Asahduren village is very high, considering the use of native chickens, which are much needed during religious ceremonies. Native chickens deserve to be further intensified in their development by providing superior seeds and better quality feed to produce better growth and better quality seeds. From the above situation, the livestock group requested that training be given on how to prepare native chicken rations by utilizing existing local resources so that the nutritional needs of native chickens can be met and the feed price can be reduced to a minimum. Therefore, we from the Service Team of the Faculty of Agriculture, Warmadewa University, and the Faculty of Animal Husbandry, Sam Ratulangi University, designed an activity on making fermented feed by utilizing local resources as native chicken feed.

### IMPLEMENTATION AND METHODS

The method of implementing activities in the Manuk Amertha group planned is to use: a) Interview and discussion methods are carried out to find out the problems experienced by partners. Discussions are also carried out related to collecting data on materials available at the location of the activity. b) Face-to-face methods and providing training so that partners gain knowledge about the content of local resource feed ingredients that can be utilized as native chicken feed, as well as how to make fermented native chicken feed, which aims to improve feed quality. c) Direct practice guided by competent instructors so that partners can apply the technology provided and handle problems in product processing and business management. The demo plot of making fermented feed was carried out by involving all group member partners; d) Delivery of equipment and materials for fermentation to partners to support the processing and fermentation of feed for native chickens.

**Table 1. Problem Solving Solution**

No.	Solusi yang ditawarkan	Partisipasi Mitra
1	Improved capacity in utilizing local resources for chicken feed	Partners are willing and enthusiastic about following
2	Increased knowledge of the nutritional needs of native chickens	directions in the mentoring and training process, and
3.	Provide understanding about making fermented feed for native chickens	participating in budget sharing
4.	Provide understanding about crossbreeding native chickens to produce Ceremony chickens.	in procuring facilities and infrastructure.

## **RESULTS AND DISCUSSION**

### **Implementation Activities**

Community service is carried out to solve problems faced by the community. One of the problems local chicken farmers face is the limited quality of feed resources. Therefore, community service is conducted by training on making fermented feed from local resources as native chicken feed. This Community service activity was conducted from July 8-10, 2023, at the Manuk Amerta livestock group cage. Mrs. Dr. Betty gave the material from the Faculty of Animal Husbandry Unsrat, who took the theme of utilizing local resources for animal feed, and Ir Ni Ketut Ety Suwitari, M.Si, with the topic of making fermented feed for native chickens. From the field data, local feed ingredients that are widely available and can be utilized in the Manuk Amerta Livestock group are banana stem, taro, cassava leaves, Gamal, Indigofera, Carica papaya, dwarf elephant grass, Moringa leaves, papaya leaves. Because most feed ingredients are waste, they will undoubtedly have low nutritional content. In addition, native chickens in their feed only need a little crude fiber, so the excess oil fiber content in the ration will significantly affect growth. High levels of natural fiber in the percentage will not only reduce palatability but will also reduce the digestibility of the percentage. The above encourages feed processing by fermentation so that the crude fiber available in the feed material will decrease, and its digestibility will increase.

The following are the activities carried out in community service:

1. Training on making fermented feed made from local resources as a feed for native chickens.
2. Counseling on preparing simple rations referring to the needs of native chickens by the factors that affect ration consumption.
3. Introduction to the types of feed that can be used as raw materials in making fermented feed.
4. Demonstration of fermented feed production from local resources as a feed for native chickens.
5. Evaluation and monitoring of the application of fermented feed making from local resources as a feed for native chickens.



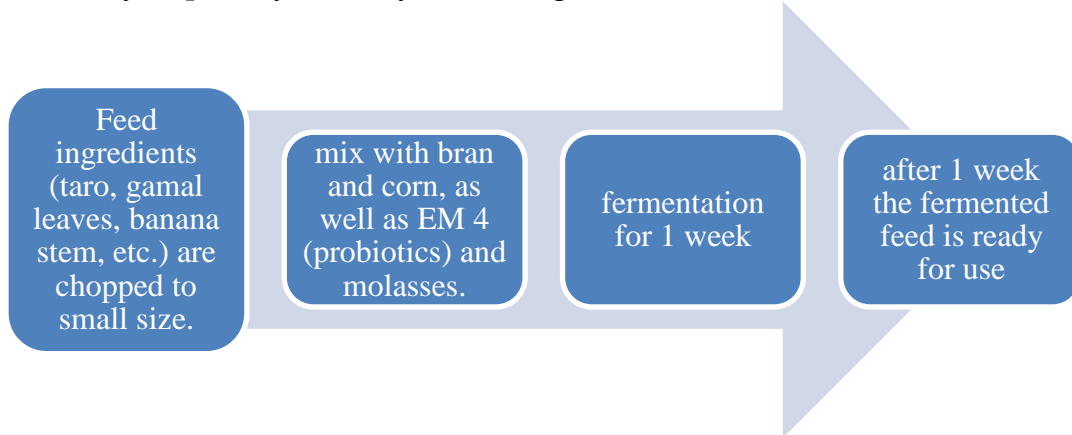
**Figure 1. Summary of Community Service Activities In Collaboration Between the Faculty of Agriculture, Warmadewa University - Faculty of Animal Husbandry, Samratulang University - Manuk Amerta Livestock Group, Asahduren Village**

The following are some of the benefits of fermented feed for poultry ( Laelasari dan Purwadaria, T. 2004 ):

1. Improve chicken feed quality and increase chicken appetite.
2. Adding nutritional value to chicken feed.
3. Improve the health and immunity of chickens.
4. Reduces the odor of chicken manure.
5. Optimizing utilizing available local resources.
6. Reduce chicken feed production costs.
7. Increase the productivity of poultry.
8. Increase the efficiency of poultry production.

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By feeding fermented feed to poultry, farmers can improve the quality of feed given to poultry and optimize the utilization of available local resources. In addition, fermented feed can also increase the productivity and production efficiency of poultry, thereby increasing farmer income.



**Figure 2 Feed Fermentation Process**



**Figure 3.** This activity was attended by ten members of the Manuk Amerta Livestock group, student lecturers from the Warmadewa University Faculty of Agriculture's Animal Husbandry Study Program, and Dr. Betty, a lecturer from the SamRatulangi Menado Faculty of Animal Husbandry.

The results of this community service show that fermented feed made from local resources can be used as an alternative to quality native chicken feed. Farmers can save production costs and increase production efficiency by using local resources. In addition, the training and counseling provided can increase farmers' knowledge on preparing a good and correct ration according to the needs of native chicken livestock. Using fermented feed made from local resources, native chicken farmers can optimize the utilization of available local resources, reduce production costs, and improve the quality of feed given to native chickens. The evaluation and monitoring results show that the Manuk Amerta can make fermented feed. The results can be given to livestock. It is hoped that feed-making can use other local ingredients to utilize the local ingredients available in Asahduren Village properly. Kusmiah et al. (2021) stated that there are many benefits of fermented feed, including improving the nutritional content of the meal, reducing pollution to livestock and the environment, increasing livestock palatability, and, most importantly, the meal can last longer so that it can help farmers in providing meal in the dry season. Bintari & Riyanto (2020) state that if the silage process is correct, it can last one to two years or even more. It is hoped that the Asahduren Village livestock group can make fermented feed sustainably.

The result of this activity is that community knowledge about making fermented feed has increased. With the increased knowledge of farmers on local chicken feed and making fermented local chicken feed, farmers will automatically practice making this fermented feed for their livestock. Six of the 10 group members have started making fermented feed by utilizing local resources for their local chicken feed.

### **Benefits Obtained**

The benefits obtained from this activity are the increased knowledge of farmers about local feed ingredients that can be utilized as animal feed, increased knowledge of farmers about the needs and nutrients that must be contained in the village chicken ration, and increased knowledge about making fermented feed made from local feed ingredients. This will undoubtedly be able to reduce the cost of rations so that production costs can be reduced as well, which in turn is expected to increase profits.

### **Supporting Factors**

The following are some of the supporting factors of community service activities based on the search results:

1. Availability of supporting funds from the faculty or related institutions for organizing community service activities
2. High enthusiasm and interest from partners in service activities.
3. Support from the government or related institutions.
4. Synergy between various parties on and off campus.
5. A cooperation network with related parties, such as the government, non-governmental organizations, and universities.
6. There is active participation from the community in community service activities.

7. There is support from lecturers or teaching staff in organizing service activities.

With these supporting factors, it is hoped that community service activities can run well and provide incredible benefits to the community.

### **The Inhibiting Factor**

The following are some of the obstacles that are often faced in the implementation of community service activities in Indonesia based on the search results:

1. Lack of campus carrying capacity and weak synergy between various parties.
2. Limited resources, both in terms of time, energy, and funds.
3. The lack of community participation in community service activities.
4. No support from the government or related institutions.
5. Challenges in identifying problems faced by the community and determining appropriate solutions.
6. Challenges in measuring the impact of community service activities.

### **Sustainability of Community Service Activities**

To maintain sustainability in the service of making fermented feed for poultry, the following steps can be taken:

1. Conduct regular training and counseling to farmers on how to make good and correct fermented feed.
2. Increase community participation in community service activities by organizing activities that are interesting and beneficial to the community.
3. Create a network of cooperation with related parties, such as the government, non-governmental organizations, and universities, to strengthen support and synergy in service activities.
4. Conducting evaluation and monitoring of the application of fermented feed making from local resources such as local chicken feed periodically to determine the effectiveness and efficiency of service activities.
5. Improve the quality of fermented feed by conducting research and development on the ingredients used and better fermentation techniques.

By taking these steps, it is hoped that the service activity of making fermented feed for poultry can be sustainable and provide greater benefits to the community and farmers. In facing these obstacles, efforts are needed to increase synergy between various parties, both on and off campus. In addition, efforts need to be made to increase community participation in community service activities and strengthen support from the government or related institutions. In addition, efforts need to be made to identify problems the community faces and determine appropriate solutions, as well as measure the impact of community service activities on the community.



## CONCLUSIONS AND RECOMMENDATIONS

The conclusion of the community service activity in making fermented feed for poultry is as follows: Community service activities in making fermented feed have taken place well in the Manuk Amerta Livestock group in Segah Banjar Asahduren village, Pekutatan Jembrana-Bali. Community service activities are carried out by conducting counseling and training to farmers on local resource-based feed fermentation technology as a feed for native chickens. This activity also aims to increase the productivity of native chicken livestock through the provision of fermented feed and also empower the community to provide better and more sustainable animal feed. Community service activities in making fermented feed for poultry are expected to increase the productivity of poultry, optimize the utilization of local resources, and empower the community to provide better and sustainable animal feed.

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