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# Bali Cow Dung Management in Ayunan Village, Abiansemal Subdistrict

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**A B S T R A C T**

Ayunan Village is located in the Abiansemal subdistrict of Badung District of Bali. Thi village is about 20 km to the north from Denpasar city, towards the village of Sangh touris attraction and Ayun park. Balinese cattle are germplasm that must be preserved because Ba is one of the sources of Balinese cattle breeding and the only area believed to have pur genetic Balinese cattle. The increase in income will encourage farmers to raise more cattl The pattern of raising Balinese cattle is still traditional and only as a sideline in betwee farming times. The process of management of the maintenance of cows that occurs i partners has been good although it is still very simple. Direct observations in the Karang Ay livestock group in Ayunan village, Abiansemal District, illustrated that Bali cattle rearin activities are very constrained by capital, feed, cow rearing management, manure channel and how to increase farmers' income from cow dung processing businesses. The mai problems that will be the focus of solving the problem are the low productivity in processin manure into organic fertilizer and the low business efficiency and business sustainability o organic fertilizer products from manure. The methods used are Presentation and demo plo as well as the direct practice of making manure from cow dung using EM4 candy an fermented for 4 weeks. The results of this activity are expected to increase production an productivity and produce organic fertilizer from cow dung that can be sold to increase th income of Balinese cattle farmers in Ayunan Village.

## *1.* INTRODUCTION

### *1.1. Research Background*

Ayunan Village is located in the Abiansemal subdistrict of Badung District of Bali. This village is about 20 km to the north from Denpasar city to the village of Sangh tourist attraction and Ayun park or about 3 kilometers from downtown Mengwi with its residents more predominantly making a living as farmers and Cattle breeders. Balinese cattle are germplasm that must be preserved because Bali is one of the sources of Balinese cattle breeding and the only area believed to have pure genetic Balinese cattle, [1,2,3,4]. The increase in income will encourage farmers to raise more cattle, [5,6,7,8]. The pattern of raising Balinese cattle is still traditional and only as a sideline in between farming time, [9,10,11]. The pattern of raising Balinese cattle is still traditional and was a sideline between farming times [12].

Bali cattle are germplasm that must be preserved which is supported by this government policy is a golden opportunity for cattle farmers in Bali, because Bali is one of the sources of Balinese cattle breeding and the only area believed to have pure genetic Balinese cattle[13]. Such an increase in income will encourage them to raise a larger number of cows. In addition, it will encourage breeders to carry out maintenance in a better way [14].

As a result of discussions with partners, several obstacles were found, including the management process of cattle rearing that occurred in partners was quite good even though it was still very simple. Planning for the production of organic fertilizer from cow dung has already happened, but it is only that the planning limit has not been carried out.

Direct observations in the Karang Ayu and Karya Laksana livestock groups in Ayunan village, Abiansemal District, illustrated that the activities of raising Balinese cattle partners are very constrained by capital, feed, cattle rearing management, processing, and manure channels and how to increase farmers' income from Bali cattle rearing businesses. The main problems and will be the focus of solving the problem are the low management ability of Bali cattle rearing, low productivity in processing manure into organic fertilizer, and low business efficiency and business sustainability of organic fertilizer products from manure. The results of this activity are expected to increase production and productivity and produce organic fertilizer from cow dung that can be sold to increase the income of Balinese cattle farmers in Ayunan Village.

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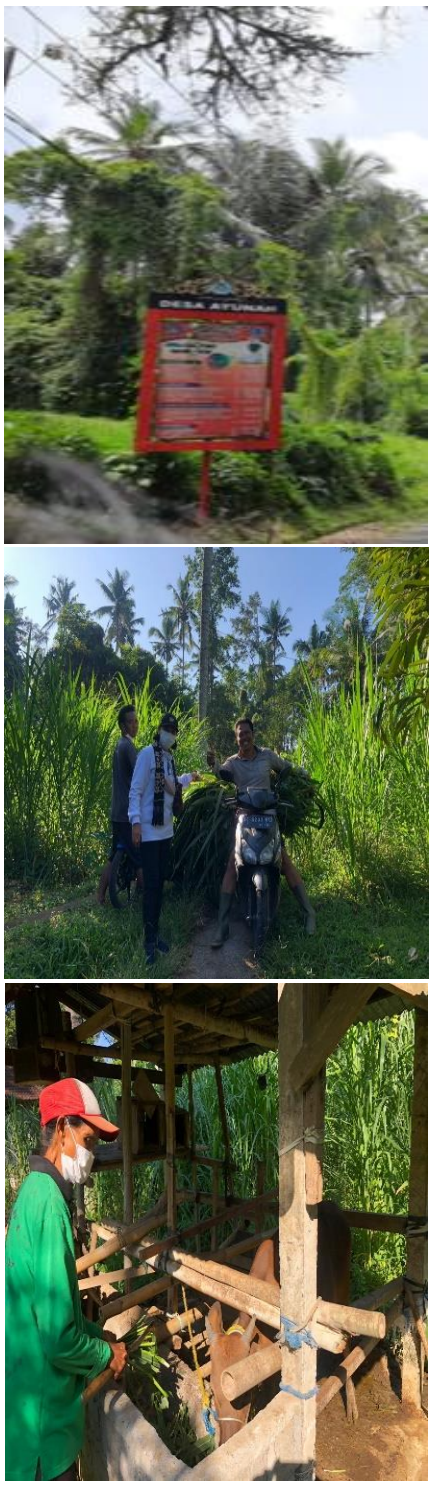

Figure 1. The environment of Ayunan Vilage, Abiansemal Sub-District

Based on observations that have been made to partner livestock groups, for the sake of sustainability and its existence, it is very feasible to get guidance and assistance from universities on an ongoing basis to increase the capacity, quality, and income of Bali cattle farmers through the processed superior products of Bali cattle in Ayunan Village, coaching and improving Bali cattle maintenance management, managing cow manure into organic fertilizer as well as marketing organic fertilizer products and marketing organic fertilizer products and Other interrelated aspects that can provide an increase in the income of farmers, with the increase in the income of automatic farmers of Balinese cattle farmers become prosperous. Concerning the management of the maintenance of the partner's Bali cattle, it can be described as the condition of the partner: The management of Bali cattle rearing in the partner is not carried out professionally because it is managed in a familial and traditional manner and is not a basic livelihood, the maintenance of Bali cattle is only as a leisurely sideline in between farming time which has now mostly used labor both in tillage, seeding, as well as harvesting. Likewise, related to books such as diaries, cash books, calculations of production costs, and calculations of profits or losses are not yet well available. Related to HR management, it is still unclear where the division of work is not yet clear between one. Partners do not yet have a good system of keeping cows due to limited knowledge and abilities possessed by farmers. The management of manure and cow dung channels has not been managed properly, which should still be managed into organic fertilizer and sold to farmers so that it can increase the income of cattle breeders. The facilities owned by partners are in the form of makeshift cowsheds.

As a result of observations, there are several problems in partners, including:

1) The equipment owned such as Shovels for shoveling cow dung, grass sickles, and baskets where the grass has exhausted its economic life. Partners cannot afford such equipment, so often in the search for animal feed, it takes a long time to orbit.
2) The absence of a cow dung drain caused a smell and the cowshed became dirty.
3) Cow dung has not been processed as an organic fertilizer that can provide additional income for farmers, so it needs the help of tools to process cow dung into organic fertilizer.

### *1.2. Research Objective*

The purpose of this application is to help "Karang Ayu" partners in terms of overcoming problems faced related to the processing of livestock manure into organic fertilizer. From the problems that have been identified, the solution to the problem solutions offered: (1) establishment and design of Bali cattle rearing management; (2) Preparation of work plans and cow dung storage; (3) process of dung into organic fertilizer; (4) The use of some damaged equipment such as sickles, baskets, shovels, and buckets, and barrels for fermentation of cow dung.

## 2. MATERIALS AND METHOD

Based on the identification of problems faced by partners and the solutions offered, the method of implementing activities: (1) Providing assistance and consultation on good and correct Bali cattle rearing management to increase Bali cattle production; (2) Help and practice how to make organic fertilizer using EM4 fermenters; (3) Procurement of tools in the form of sickles, hoes, scops, and barrels; (4) Counseling and assistance during the process of making organic fertilizers.

## 3. RESULTS AND DISCUSSION

After conducting several meetings with partners, it was agreed upon on the schedule of activities carried out. The partner submits several schedules of activities adapted to his activities so that the training does not interfere with the activities of the

partners. Implementation of community service activities for good and correct cow rearing as well as assistance and demonstrations for making organic fertilizer from cow dung using EM4 fermenters.

Figure 2. Socialization of Good and Correct Cattle Rearing Management.

The stages of implementation of the activities that have been planned can be described as follows. The team explained the good and correct maintenance of cows and the processing of cow dung into organic fertilizer with EM4 fermenters so that the decomposition process is fast. The form of science and technology was given to the partners of the Karang Ayu Livestock Group in general:

1) Providing an understanding of Bali cattle rearing management through the socialization of service activities in an authentic manner to equalize perceptions and strengthen partner group institutions
2) Providing cow rearing management training to the community, especially in partner groups.
3) Providing training on the manufacture of organic fertilizers in partner groups from cow dung.

Accompanying partners in the process of making organic fertilizer using EM4 fermenters until successfully producing kendang fertilizer.

In general, fertilizer is divided into two, namely: (1) Inorganic fertilizers commonly called artificial fertilizers (factories) such as Urea, TSP, and ZA, and (2) Organic fertilizers or also known as natural fertilizers, which can be in the form of manure, green manure, or composting fertilizers called composting called compost [15]. So far, inorganic fertilizers have been commonly used but after knowing the negative impacts caused which can cause soil damage both physically, chemically, and biologically, the soil, in recent years the use of organic fertilizers has again been campaigned by both the government and other related agencies. The products produced have also been given a separate label, namely **organic products** which are currently more consumed by the middle and upper economic groups because the price of the product is relatively more expensive. Organic fertilizer that is commonly used by the community is manure (manure), which is usually left unattended for a certain period before being spread on plants.


Figure 3. Accompanying Partners in the Process of Harvesting Cow Dung into Organic Fertilizer

Another technique that has also been applied is simple composting, namely by mixing manure (manure) with other organic materials in a hole for a certain time. This simple technique is an obstacle to the provision of organic fertilizer in large quantities and a short time, because with this technique the time needed is still relatively long, which is between 4-6 months. Currently, these obstacles have been answered with the discovery of various kinds of activators/starters that can accelerate the decomposition of organic materials into products that can be used instantly by plants (organic fertilizers). These activators /starters include Stardec, Orgadec, EM4, and vermicomposting techniques, namely by using earthworms and others. These products can be obtained easily because they are already traded [16]. With the use of the activator, composting can be done in a short time composting technique using an **EM4** activator. EM4 is a development product of Starbio, originally called the Starbio plant, containing several microbes that play a role in the decomposition/decomposition of organic waste so that it can become compost. Raising cows is very profitable because, in addition to producing meat and milk, cow dung is also useful and can be processed into organic fertilizer. Cow dung has an economic value, besides that in general cow dung is widely used as manure because its availability is more abundant compared to other manure. [17]. One cow each day produces manure ranging from 8 – 10 kg/day or 2.6 – 3.6 tons/year or the equivalent of 1.5 - 2 tons of organic fertilizer [18]. The potential of feces that can be utilized as organic fertilizer is very high.

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## 4. CONCLUSION

It can be concluded that the cultivation of Balinese cattle partner Karan Ayu in Ayunan village has been implemented properly, almost 95% of farmers are responsible for their livestock. As well as the management of EM4 fermenter cattle has been carried out, farmers focus on production but have not been able to market their fertilizer products. It is recommended by breeders that the implementation of this PKM can continue, especially in the field of marketing, because breeders have not been able to sell their products, only able to process and produce fertilizers

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