



# Understanding Level of Farmers on the Use of The Integrated Livestock Area in Nggorang Village, Komodo District, West Manggarai in East Nusa Tenggara

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## ABSTRACT

The purpose of this community service activity is to support the Agro Tourism of Nggorang Village, Komodo District, West Manggarai to maximize the productivity of cattle farms by utilizing the availability of natural resources while empowering rice straw agricultural waste as the main source of feed by utilizing feed processing technology, creating a healthy environment in the village by supporting Agroeduwisata village and clean grazing center through the utilization of livestock feces waste into organic fertilizer using natural probiotics, which have an impact on environmental cleanliness. In achieving this goal, there are a number of methods for achieving the objectives, namely the active participation approach of the community in collaboration with the village component starting from the planning stage, including data collection and mapping of available resources; implementation phase; the monitoring and evaluation phase of the activities to ensure the achievement of all aspect of the objectives. Based on the results obtained in this activity, there is an understanding of the benefits and advantages of integrated grazing land that can be applied by farmers in Desa Nggorang village, Komodo District, West Manggarai in NTT

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## **1. Introduction**

West Manggarai is a district located in the western region of East Nusa Tenggara Province. West Manggarai has several small islands around it, including Komodo Island, Rinca Island, Seraya Besar Island, Seraya Kecil Island, Angel Island and Longos Island. Besides in the tourism sector, West Manggarai also has very promising livestock and agricultural potential. Based on data from the West Manggarai district livestock service, large livestock including cows, horses and buffaloes have a large number (Department of Animal Husbandry of West Manggarai, 2018). The agricultural sector is also the leading in this district because it can improve the economy of West Manggarai. Based on the Food Production Data of West Manggarai, it is noted that a number of superior agricultural crops are Rice Production, Rice Paddy, Rice Paddy, and Corn (Department of Horticultural and Plantation of West Manggarai, 2018).

Nggorang Village is an ideal area for cattle development and agricultural waste utilization because it is supported by several factors including the carrying capacity of the area where existing water sources can meet the water needs of the community throughout the year and the agroecosystem is still dominated by pasture fields that can meet the needs. Nggorang village also has high potential for livestock resources, especially cattle and buffaloes, and potential resources are inseparable from the farming system that is inseparable from the lives of farmers, as well as the carrying capacity of food availability, the availability of forage feed from pasture fields and grass around the agricultural area and agricultural waste (straw) is quite high. The natural resources of Nggorang Village can be a source of income that increases the economy of the village community. Because of the knowledge of the use of local food and the availability of livestock and land owned based on the downstreaming of research results that have been produced, it can significantly increase the capacity of the Nggorang Village through partner farmer groups.

This activity focuses on education and training accompanied by the creation of a pilot model and assistance as well as monitoring and evaluation focused on several things, namely the application of rice straw processing technology which is the biggest agricultural waste as the main source of feed for livestock by implementing downstream research results (Hidayat 2014; Bata 2008); creating an Agrotourism village that is the center of a clean grazing field through the utilization of livestock feces livestock waste into organic fertilizer using natural probiotics (Djuarnani 2004), another potential variety of feed variety, available in large quantities as an alternative to well-processed livestock feed that maximizes resources feed (Sutanto 2002). This activity is expected to optimize livestock productivity through the independence and adequacy of animal feed, increasing the number of births, increasing the area's beauty through the utilization of livestock waste which significantly impacts on improving the quality of life of the community in the village of Nggorang Village, Komodo District, West Manggarai, NTT.

## **2. Methods**

An initial survey to determine the location of the training venue was conducted in October 2018 in Nggorang Village, Komodo District, West Manggarai. The initial survey site was conducted in three groups of farmers in Nggorang Village and Nggorang Village Office. The activity of introducing grazing land is carried out on 22 to 25 August 2019 which is located in the Meeting Hall of the Village office in Nggorang.

The approach method offered to support the Partner Village Service Program referred to is in the form of education and training accompanied by the creation of a pilot model and assistance as well as evaluation monitoring. Education and training are carried out in two types that are aimed at increasing the knowledge / understanding of farmers in terms of good livestock maintenance management through the provision of feed in order to improve livestock products from the three partner groups. This training focuses on the technique of making feed originating from local resources and the technique of making silage by utilizing abundant forage during the rainy season, so it is hoped that farmers can apply this well to be able to meet the needs of feed and no longer raise livestock. This training is focused on techniques for processing livestock and agricultural waste into organic fertilizer, compost and biogas which can be a new source of income for farmers or ranchers. In this training and education natural fermentation materials will be introduced as downstreaming from the results of the Dedicated Team Research that has been produced so that it can be useful for farmers or breeders (Detha et al. 2019; Foeh et al. 2018).

Pilot model activities to increase the level of adoption of farmer groups in making silage feed originating from local resources owned by farmers or easily obtained by farmers. The pilot model is carried out in a pilot cage made in the farmer's land and cattle are given local feed directed at the forage that is available in the farmer's area, namely rice straw. Consistent mentoring activities are carried out throughout the activity to ensure program sustainability. This activity will be carried out starting from the preparation and implementation of education and training activities, demonstration plot implementation until the end of the whole series of activities. In addition, assistance will be made in the bookkeeping

business of making silage and processing livestock and agricultural waste so that it can know the amount of production costs and profits obtained by partner traders.

Monitoring and evaluation needs to be done in order to see changes in the behavior of farmers groups, especially the three groups of program partners related to the various benefits obtained. Evaluation is carried out after a series of education and training activities, as well as good model maintenance system pilot activities. In the aspect of education and training carried out before and after counseling activities. The purpose of the education and training evaluation is to determine the level of understanding and skills at the beginning and at the end of the activity. In terms of the level of application of making silage feed that utilizes local feed, it will be evaluated according to the methods that have been taught and in the order of work. The feed provided by farmers, maintenance management is applied properly and is expected to be applied by all farmers who have been raising their livestock.

In conducting training, the success of education and training provided to farmers or training participants is measured using a data collection tool in the form of a questionnaire. The questionnaire contained several questions around grazing land use. Some questions that were asked were about the benefits of integrated grazing land, what important aspects were needed in a grazing area, technology that needed to be applied in a grazing land, and how concrete actions in implementing integrated grazing land in Nggorang Village, Komodo District, Manggarai District.

### **3. Result and Discussion**

Based on the planned implementation method approach, the training and education activities were held on August 23-25, 2019. The meeting was attended by village partners represented by the Village Head and Farmer Group Partners who had signed a cooperation agreement. The initial meeting after the agreed service activities were held at the house of the village head, which was followed by all the farmer groups involved. The activity that has been carried out is also to conduct a survey of the availability of potential grazing land which is used as integrated grazing land from various partners as a center for conducting training and Agro-tourism centers which can be an example for other farmer groups in the village of Nggorang.

In general the Education and training activities held on August 23-25, 2019, were carried out in two types aimed at increasing the knowledge / understanding of breeders in terms of good livestock maintenance management through the provision of feed in order to improve livestock products from the three partner groups. The training and extension focused on the introduction of an integrated grazing system, especially the benefits and benefits of the farmers who implemented the system. It also provided important stages in implementing an integrated rearing system that could work together with the district government. This training also provides a way of making feed derived from local resources and Amoniase manufacturing techniques by utilizing abundant forage during the rainy season, so it is expected that farmers can apply it well in meeting feed needs. The training also focused on techniques for processing livestock and agricultural waste into organic fertilizer, compost and biogas which can be a new source of income for farmers or ranchers. The third extension topic is to organize grazing land in Nggorang Village as an integrated grazing land as well as an agrotourism center.

Based on the results of the questionnaire distributed to all training participants, the results obtained can describe the level of understanding of the participants after attending training and education activities.

#### **1. Understanding of integrated grazing land requirements.**

Based on the results obtained, 18 participants answered that what was most important in a grazing area was feed and water, development of feed processing technology, waste treatment technology. While 2 participants answered that they only needed food and water as the main requirements in establishing a grazing land. Integrated grazing land is raising livestock in a certain area or location with available food and water resources, and developing feed and waste treatment technology. The pasture system is a combination of livestock release in the free pasture and feeding. Livestock development through integrated grazing systems is more efficient, for example in the use of labor and in a certain time can look for preferred feed and does not interfere with other community farming activities. Requirements needed in forming a grazing land that is water infrastructure such as making deep ground wells equipped with pumps and drinking water tanks, making live fences around the land, land for planting grass on land that will function as fodder, cages or shelter locations permanent and temporary livestock, animal feed processing location, and livestock waste treatment location.

## 2. Advantages of applying integrated grazing land

Based on the results of the questionnaire, all participants (20 people) answered that the advantage of applying integrated grazing land was to be able to make labor efficient in supporting the availability of animal feed. All participants also promised that integrated grazing land would be beneficial for integrated grazing to improve soil fertility and animal husbandry activities with an integrated grazing system to maintain the beauty of the surrounding environment. Some of the advantages of integrated grazing land include integrated grazing as a combination of natural pasture and natural forest ecosystems into open areas that can absorb surface water and from livestock manure released in integrated grazing can improve soil fertility; The existence of integrated grazing that forms breeders' communities, information exchange media, animal transactions, and other social interactions; Breeding activities with an integrated grazing system to maintain the beauty of the surrounding environment; Use less labor; In addition, some cattle are used to work on agricultural land.





Figure 1. Integrated grazing land introduction training

### 3. Basic principles for implementing integrated grazing land

Based on the results of the questionnaire obtained data that all training participants answered that the existence of integrated grazing that forms a community of farmers, media exchange information, animal transactions, and other social interactions. All participants also answered that in building collective grazing land, there needs to be clear agreement by the local community with communally recognized boundaries and the need for farmer groups in grazing land to respect each other's differences, that diversity of people crosses village boundaries, social status to participate become part of the integrated grazing management area. In forming an integrated grazing land, there are several important conditions, namely the existence of integrated grazing is recognized by the local community with communally recognized boundaries; Integrated grazing according to the community of breeders is a community grazing farm where animals release animals freely where one day the cattle can be taken back; Mutual respect for differences, that diversity of people crosses village boundaries, social status to be part of an integrated grazing area; Respect the initiative, that some parties want to exchange information on events affecting livestock in integrated grazing; Local communities have management rights over integrated grazing areas which have management area boundaries; Bring economic benefits to the local community; and Collectivity, where integrated grazing then becomes a provider and medium for the use of individual rights to become a common property.

### 4. Conclusion

Based on the results, there is an understanding of the benefits and advantages of integrated grazing land that can be applied by farmers in Desa Nggorang village, Komodo District, West Manggarai, NTT. The authors give thanks to the Directorate General of Higher Education, Ministry of Research, Technology and Higher Education who has funded community service activities in the village of Nggorang Village, Komodo District, West Manggarai, NTT. Acknowledgments were also given to the Nusa Cendana University Research and Service Institute who provided in kind forms in support of this community service.

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