Integrated Farmer-Livestock Business In Opaasi Village, West Ranomeeto District, South Konawe Regency

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Abstract
The potential for the development of beef cattle farming in South Konawe Regency is a potential area for the development of Bali cattle with a beef cattle population of 367,665 heads and one of them is Ranomeeto Barat District with a cattle population of 3608 heads or 5.01% of the total population in the Regency. South Konawe. The purpose of this service is to provide technical assistance and guidance, as well as training in increasing knowledge and skills regarding potential, preparing livestock business plans, and overcoming problems faced by farmers with the methods used including the preparation stage, socialization stage, and activity implementation stage. The results of community service in technical assistance and training in making colony cages, making compost, preparing livestock business plans provide an alternative for the community in maximizing the productivity of beef cattle business.

Keywords: *Integrated, Farm-Livestock, Opaasi Village.*

I. INTRODUCTION

Livestock development is currently oriented towards regional development based on superior livestock commodities, institutional development of farmer-breeders, improvement of livestock business and industry, optimization of utilization, security and protection of local natural resources, development of wider and more profitable partnerships and development of appropriate and environmentally friendly technology.Southeast Sulawesi Province in 2020 consists of 15 regencies and 2 administrative cities with an area of 38,140 km2 or 3,814,000 ha. The area of the area is 11,84% of which is the administrative area of South Konawe Regency which is certainly potential for the development of beef cattle. Meanwhile, the administrative area of the South Konawe Regency government in 2020 consists of 22 sub-districts and 365 villages with the capital Andoolo. The population of South Konawe Regency in 2020 is 280,595 people and the population growth rate from 2016-2020 of 0,90% is in a position below the population growth rate of Southeast Sulawesi in the same year only 1,81% [21].Southeast Sulawesi is a potential area for the development of Bali cattle with a beef cattle population of 367,665 heads and South Konawe Regency 72,004 heads [21].

There are several sub-districts that have the potential for cattle breeding development in South Konawe Regency, namely West Ranomeeto District which has a

cattle population in 2020 of 3608 heads or 5.01% of the total population in South Konawe Regency. Therefore, support is needed for the development of a business-oriented cattle business in West Ranomeeto District in order to increase the income and welfare of the farmer's family.Opaasi Village located in West Ranomeeto District, South Konawe Regency, most of the people have a livelihood as planters and breeders and form livestock farmer groups in order to get easy access to capital assistance and production and marketing facilities. Agriculture with an integrated concept is considered an ideal agricultural system to be applied in rural areas because livestock populations are found in rural areas and have long been maintained to support agricultural cultivation.The application of integrated crop-livestock agriculture is an alternative to the use of agricultural waste to be used as animal feed and livestock waste can be used as manure, so as to create a zero waste production system [1,2]. The application of integrated crop-livestock agriculture can reduce farmers' dependence on various external inputs, by using local resources as optimally as possible.

This is in line with the concept of LEISA (Low External Input for Sustainable Agriculture). Integrated agriculture is a sustainable system and does not stand alone and adheres to the principle that everything produced will return to being a resource that can produce [3,4].In the long term, integrated crop-livestock agriculture is related to land conservation programs, as an effort to respond to agricultural land degradation. Plant-livestock integrated agriculture is a form of appropriate technology that is in harmony with the environment, and can meet ecological principles [5]. Environmentally friendly farming requires the selection and application of technology that is compatible with the environment, so that farm productivity is optimal and the products produced are safe [6]. One of the keys to land conservation, both dry land and paddy fields, is the content of sufficient organic matter in the soil [7]. The addition of manure to the soil, in addition to improving soil structure, also increases the nitrogen content [8].The condition of farmers' dependence on inorganic fertilizers is high, the management system for raising livestock is not good, the use of introduced grass and forage as animal feed is not optimal, the technology for processing animal feed does not yet exist and processing waste into manure [9,10].

This in turn will make their business less efficient, so a breakthrough is needed to replace the role of inorganic fertilizers with organic fertilizers from livestock manure and improve their cattle rearing management both related to feed management and livestock reproduction [11,12].Efforts needed by farmers in Ranomeeto Barat District, especially Opaasi Village at this time are technical assistance and guidance, as well as training through formal groups such as livestock farmer groups to increase knowledge and skills regarding potential, develop livestock business plans, overcome problems, make decisions and apply technology that is in accordance with local resource conditions in a synergistic and environmentally friendly manner so that the livestock business becomes efficient, high productivity and sustainable.The results of the observations show that the dependence of livestock farmers on the use of inorganic

fertilizers is very high, although in terms of the ease of obtaining fertilizers has been facilitated by the group. In the long term this will have a negative impact on the physical and chemical quality of the soil [13]. In addition, their farming business will become very dependent on the supply of inorganic fertilizers from outside Southeast Sulawesi, so that the profits of the business will be uncertain. In the field of cattle farming, group business is not well organized.

Cattle are still left to graze all day without additional feeding by the farmers. This may be due to the lack of knowledge of farmers about potential additional feed sources for their cattle, even though there are many sources of additional feed around them, such as gamal leaves, straw and rice bran [14]. In general, feed intake that only comes from natural grass can meet basic living needs and a little for livestock growth, but has not been able to meet the needs of ideal livestock growth and production [15]. This is due to the very diverse quality of natural grass [16]. Farmers' attention to additional feed for pregnant and lactating cattle is still very minimal so that calves born have a low average birth weight [17].The results of discussions with group members, both livestock farmer groups, and local communities in Opaasi Village, determined several main problems that must be prioritized to be overcome through community service programs through this Thematic Real Work Lecture, namely, dependence Farmers' use of inorganic fertilizers is very high, farmers' lack of knowledge on how to arrange feed and distribution of feed types based on age and condition of livestock, lack of knowledge and skills of farmers in utilizing additional feed sources, lack of introduced grass types planted by livestock farmer groups and lack of farmer knowledge about handling livestock disease.

The target of implementing this KKN-Thematic service activity is a group of beef cattle breeders in Opaasi Village, Ranomeeto Barat District, Konawe Selatan Regency, namely, increasing the knowledge and skills of farmers in managing livestock, so that farmer productivity and income increase, increasing the capacity of farmers in recognizing potential, preparing business plans, overcome problems, make decisions and apply technology that is in accordance with local resource conditions in a synergistic and environmentally friendly manner so that the livestock business is more productive and sustainable, supports the household economy and builds togetherness of farmers in developing beef cattle business intensively through better group management by implementing standard operating procedures for each group, so that farmers have a strong bargaining value from a business perspective.

II. METHODS

The preparation stage for Thematic KKN in Opaasi Village, Ranomeeto District includes activities, coordination and correspondence with various related parties, briefing and consolidation of the implementing team and students participating in Thematic KKN, identification of farmer groups who are the target companions in Thematic KKN activities, identification of data and information sources and the needs

of breeders, preparation of instruments, training materials and mentoring and recruitment of the 2021 Thematic KKN participants started with socialization at the University level, then continued at the Faculty level. Participants of the Thematic KKN are active students within the Halu Oleo university, totaling 15 people.

Community service activities carried out by a team of Faculty of Animal Science lecturers integrated with the Thematic Community Service Program from the Halu Oleo University Research and Service Institute (LPPM) in 2021 were held in Opaasi Village, Ranomeeto Barat District, South Konawe Regency. The implementation of this activity involved 15 Thematic KKN students. The stages of implementing the Thematic Community Service Program in Opaasi Village, West Ranomeeto District, South Konawe Regency, are broadly divided into three activities:

2.1 The preparatory stage, includes activities:

- Coordination and correspondence with various related parties
- Briefing and consolidation of the implementing team and participating students KKN
- Identification of farmer groups who are the target of companions in KKN-Thematic activities
- Identify sources of data and information as well as farmer needs
- Preparation of instruments, training materials and mentoring

2.2 The socialization stage, includes activities:

- Coordination of the timing of KKN-Thematic and the place of socialization
- Defending KKN-Thematic students
- Implementation of socialization involving elements of the local government, community leaders, youth leaders, administrators and members of the target farmer groups as partners for this service activity.

2.3 The activity implementation stage, includes:

- Counseling and training for partners
- Technical guidance and assistance to farmer groups
- Documentation and reports

Analyzing the right location for livestock rearing locations innovate technology to simplify maintenance. In addition, livestock rearing management is carried out, including methods of livestock selection and handling of several diseases that generally attack livestock. In addition, it explains reproductive management on how to detect estrus in cows, and explains mating management including comparisons between males and females. Furthermore, it provides an understanding of livestock health management through detection of clinical symptoms, vaccination and treatment of diseased livestock. Introducing waste treatment technology to cattle farmers such as making cow-based manure to prevent problems that can arise due to cow feces waste.

III. RESULT AND DISCUSSION

The Community Service Program for integrated lecturers of Thematic KKN which was held in Opaasi Village, Ranomeeto Barat District, Konawe Selatan Regency is scheduled in 3 stages of implementation, namely: (1) The preparation stage includes recruitment, team briefing, coordination with related parties and correspondence, identification needs, and preparation of instruments. (2) The socialization stage includes determining the time and place of socialization, as well as debriefing students participating in KKN. (3) The implementation phase includes counseling and training, technical guidance, mentoring and reporting.

The debriefing of KKN-Thematic Students is intended to provide knowledge and understanding of the KKN-Thematic activities that will be carried out. The KKN-Thematic debriefing was first carried out at the Halu Oleo University level, then followed by debriefing activities at the Faculty of Animal Science level. The provision of KKN-Thematic at the faculty level is more directed at the introduction of animal husbandry technology which will be socialized to the target community and the technical implementation of it. The activity of debriefing students participating in KKN-Thematic at the Faculty of Animal Husbandry can be seen in Figure 1.

Fig 1. Briefing by the Head of the KKN-Thematic Team and Material Giving

Students participating in the Thematic KKN departed for the KKN location in Opaasi Village, Ranomeeto Barat District, Konawe Selatan Regency, on August 11, 2021. In detail, the process of releasing and accepting students at the Thematic KKN-location is presented in (Figure 2). The activity that started a series of KKN-Thematic activities in Opaasi Village, Ranomeeto Barat District, South Konawe Regency was planting forage for livestock consisting of odot grass, molato, elephant and setaria. This activity was accompanied by Dr. Ir. La Ode Arasd Sani, S.Pt., M.Sc., IPM, Achmad Selamet Aku S.Pt., M.Si, Ir. Natsir Sandiah, M.P, and Rahim Aka, S.Pt., M.P.

Forage is a plant that is generally given to livestock as feed. The forage comes from 2 main groups, namely the grass group (graminae) and the legume group (legume). The grass group is generally used as an energy source feed, while the legume group is used as a protein source feed because it has a high crude protein (PK) content. However, not all forage fodder has good nutritional quality and production capacity. Therefore, it is necessary to introduce forage types that have high production capacity and good nutritional quality.

Fig 2. Release of students participating in KKN-Thematic and Admissions students participating in KKN-Thematic by the Village Head Opaasi

Fig 3. The process of growing fodder forage

Some examples of quality grasses are elephant grass (*Pennisetum purpureum*), king grass (Panicum maxima), and odot grass (*Pennisetum purpureum var*. Mot). Meanwhile, some examples of legumes that have good quality are gamal (*Gliricidia sepium*), turi (*Sesbania glandiflora*), indigofera (*Indigofera* sp.), and Sentrosema pubescens. The process of planting forage crops at the KKN-Thematic locations is presented in Figure 3.The third activity in the implementation of the Thematic KKN in Opaasi Village is counseling and technical guidance on the manufacture of compost. One aspect that needs attention in a livestock business is the waste generated. The majority of the Opaasi village community work as breeders where waste from livestock can be processed into organic fertilizer, in addition to livestock waste, agricultural waste also has the potential to be used as organic fertilizer.Organic fertilizers are fertilizers partially or wholly derived from plants and or animals that have gone through an engineering process.

Organic fertilizers have various types and variants. Types of organic fertilizers are distinguished from their raw materials, manufacturing methods, and forms, and organic fertilizer technology is developing rapidly [18]. This development cannot be separated from the impact of the use of chemical fertilizers which cause various problems, ranging from damage to ecosystems, loss of soil fertility, health problems, to the problem of farmers' dependence on fertilizers [19,20]. In general, organic fertilizers are distinguished based on their shape and constituent materials in terms of shape, there

are solid and liquid fertilizers.Solid fertilizer (compost) is residual organic matter derived from plants, animals and organic waste that has undergone a decomposition or fermentation process. The types of plants used in making compost in Opaasi Village are dry leaves and many other plants that can be used as materials. Materials from livestock used include cow feces, but urine and leftover feed can also be used as well as biogas liquid. The process of making organic fertilizer in the KKN-Thematic location area is presented in Figure 4.

Fig 4. The Process of Making KKN-T Student Compost Fertilizer
Faculty of Animal Science, Halu Oleo University

The third activity carried out at the KKN-Thematic location was about how to make clip cages. This activity was carried out by Drh. Putu Nara Kusuma Prasanjaya, Drh. Purnaning Dian, Dr. Ir. La Ode Arsad Sani, S.Pt, M.Sc, IPM., Ir. Natsir Sandiah, S.P, M.P, and Astriana Naiprah, S.Pt, M.Sc accompanied by members and participants of KKN-Thematic and attended by the community in Opaasi Village.Clamping cage is a tool to reduce the range of motion of cows so that it is easy to give treatment to cows, both medication and AI. The purpose of the clamp cage is for farmers to know the right size how to make a clamp cage. The process of making cages at the KKN-Thematic location is presented in Figure 5.

Fig 5. The process of making Clamps by KKN-T Students
Faculty of Animal Science, Halu Oleo University

The fourth activity carried out at the Thematic KKN-location is about Increasing Livestock Productivity and Handling Diseases. This activity was carried out by Drh. Putu Nara Kusuma Prasanjaya, Drh. Purnaning Dian, Dr. Ir. La Ode Arsad Sani, S.Pt, M.Sc, IPM., Ir. Natsir Sandiah., S.P, M.P, and Astriana Naiprah, S.Pt, M.Sc were accompanied by members and participants of KKN-Thematic and attended by the community in Opaasi Village. Livestock health management is one aspect that affects the productivity of beef cattle. An animal will only be able to achieve optimal productivity if it is in good health, free from all kinds of diseases. This shows that livestock health needs to be considered. Several types of diseases that often attack beef cattle in Opaasi Village are intestinal worms, and parasitic lice attack. In addition to disease prevention through control of cage sanitation, it is necessary to provide vitamin supplements to livestock to increase body resistance and prevent disease.

Fig 6. The process of giving vaccinations to livestock
Opaasi Village's cows

After the seed selection counseling was carried out, the next activity was to provide beef cattle health services in Opaasi Village. Health services include the provision of B-complex vitamins and the provision of deworming medicine for beef cattle. Livestock health services were preceded by the construction of clip-on cages as a means of providing health services for cattle in Opaasi Village (Figure 6).This activity is an additional work program for Thematic Community Service Program in Opaasi Village. The stable is a unit between the cage where the livestock takes shelter and other buildings that support production. The stables consist of buildings (such as management offices, shepherd's houses, stables and warehouses), roads, drainage, pangonan fields, forage gardens, and landfills.

There are 2 types of cages in beef cattle fattening, namely individual cages and colony cages. Individual cages are cages for livestock where livestock occupy their respective places. Individual cages for 1 cow are about 2.5x1.5 m. In individual pens, the placement of cows is done in one row or one row. Colony cages place several cows in the same pen without any barriers between cows. In a colony cage, one cow requires a wider area, which is about 2 x 2.5 m (Siregar, 2013). The advantage of the colony cage is that the cows will be healthier and have stronger legs because the cows move

more in the colony cage. In detail, the stages of making fattening cages at the KKN-Thematic location of Opaasi Village are presented in Figure 7.

Fig 7. The process of making a fattening cage

Students participating in the Thematic KKN were withdrawn from the KKN location in Opaasi Village, Ranomeeto Barat District, Konawe Selatan Regency, on September 12, 2021. In detail, the process of releasing and withdrawing students from the Thematic KKN location is presented in Figure 8

Fig 8. Release and Withdrawal of KKN-Thematic Students in Opaasi Village by the head of Opaasi Village To the Assistant Lecturer

IV. CONCLUSION

The results of the service from the Thematic KKN which was carried out in Opaasi Village, Ranomeeto Barat District, South Konawe Regency, it can be concluded that to overcome the problems faced by farmers in terms of overcoming the shortage of fertilizers, they can utilize the remaining organic matter from plants and livestock that have undergone a decomposition process and In increasing livestock

productivity, health management is an aspect to achieve optimal beef cattle productivity in order to avoid all kinds of diseases.

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