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Development Potential of Beef Cattle under the Coconut Trees in East Bolangitang District Regency of North Bolaang Mongondow

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Abstract— *Farmers in East Bolangitang District were trying to increase beef cattle population as a source of their income, but the problem was the lack of feed caused by cattle being cultivated on agricultural land. The purpose of this study was to determine the potential for land development under coconut trees for forage. The research method used was a survey method, with the determination of the location was by purposive sampling, namely three villages that have the largest cattle population. The data collected was primary and secondary data with the type of data was cross section and time series. Respondents were determined by purposive sampling, namely 40 farmers who use land under coconut. Analysis of the data used descriptive analysis. Coconut area was 0.2-2 Ha or the average was 0.94 Ha. 35 percent ownership status by farmers and 65 percent farmers as tenants. Beef cattle ownership was 148 or 2-6 cattle per farmer. Feed consumption per head per day consisted of 6.21 kg of grass, 10.40 kg of corn waste and 6.26 kg of rice waste. Forage production for 0.94 Ha can be utilized by 8.83 ST. In conclusion, coconut land in the study area has the potential to be used as a forage development. Need for socialization for farmers to introduce quality forage.*

Keywords— ***beef cattle, land, coconut, potential.***

I. INTRODUCTION

The phenomenon of achieving self-sufficiency in beef that was difficult to achieve was influenced by various factors, including the insufficient population of beef cattle. Meat production from beef cattle in traditionally developed areas was highly expected to support the national demand for meat.This includes local cattle raised by small farmers in rural areas (Rusdiana, 2019). However, the production of meat needed was closely related to the availability of feed both in quantity and quality. The availability of forage both quantity and quality depends on the land potential of each region.

Several research results show that beef cattle farmers face various obstacles related to feed. The existence of land conversion causes the narrowness of the land to be used for feed development. Land conversion is a problem faced by various beef cattle farming development areas (Mulyani et al. 2016; Elly et al. 2018 b; Elly et al. 2019 a).

Cattle farmers together with the government were trying to solve the problem of forage in the development of beef cattle. Beef cattle must be encouraged considering the need for beef every year has increased. Beef cattle as ruminants had the largest contribution as meat producers. This contribution greatly supports the fulfillment of food needs, especially animal protein. In addition, beef cattle had a role in income distribution and had significant market potential (Rusdiana and Talib. 2019).

Beef cattle breeders in East Bolangitang District were trying to increase the population of beef cattle as their source of income. Increasing the productivity of beef cattle farming as an effort to increase economic growth in rural areas was aimed at increasing added value and farmers' income (Romjali, 2018). On the other hand, the

development of beef cattle was sought to supply the shortage of beef availability regionally. This means that beef cattle in the regions had the opportunity to support the demand for beef whose demand continues to increase from year to year.The need for national beef consumption had not been met even beef tends to be in deficit until 2018 (Sodiq et al. 2018). The beef cattle business is developed so that the population achieved is balanced with the consumption needs of food of animal origin (Rusdiana and Praharani, 2018).

The problem was that the productivity of beef cattle in this area was low due to many obstacles. Lack of feed because cattle were grazed on agricultural land was one of the obstacles faced by farmers.Whereas in this area the land under coconut trees had not been used optimally.Other farmers develop food crops under coconut trees and the waste was used as feed. However, the quality of food crop waste was considered low, especially dry waste. The problem was how far the land under coconut trees can be used for forage development. Based on the background and thoughts above, a study has been carried out regarding the use of land under coconut trees. The purpose of this study was to determine the potential for land development under coconut trees through the introduction of forage fodder.

II. RESEARCH METHODS

The research method used was a survey method to farmers through interviews using a list of questions. The location of the research was determined by purposive sampling, namely three villages (Bohabak, Binjeta and Nunukan villages). The sample village was determined based on the consideration that the village had the largest population of cattle. The data collected was primary and secondary data with the type of data was cross section data. Respondents were determined by purposive sampling, namely 40 farmers who used the land under coconut trees. Data analysis used descriptive analysis and carrying capacity.

III. RESULTS AND DISCUSSION

Farmers develop beef cattle as a sideline. This condition was supported by various studies related to beef cattle farming in rural areas. The main occupation of the respondents was as a farmer (100 percent). This condition was supported by the potential of research areas in agricultural development, such as the availability of dry land and rice fields. The optimally managed regional potential will support the successful development of the livestock subsector (Yulia et al. 2015).

Most of the farmers in the research location develop food crop farming, both in open land and under coconut trees. The area of coconut land used by farmers was 0.2-2 Ha or an average of 0.94 Ha. The results showed that the coconut land ownership status was 35 percent owned by farmers and 65 percent of farmers were cultivators. The land under coconut trees was used for grazing cattle. The number of cattle ownership was 148 heads or 2-6 heads per farmer. Various efforts were made to increase the scale of business, including the government in this case facilitating the increase of business scale (Ministry of Agriculture. 2017). Cattle in the study area, during the day grazed and transferred from one coconut land to another. Farmers had not built cages so that cattle were left on agricultural land. The respondent's cattle consume grass that grows wild under coconut trees. Corn and rice waste were also used as cattle feed in the study area. Consumption of cattle feed at the study site can be seen in Table 1.

Table 1. Beef Cattle Feed Consumption in the Research Area

No.	Consumptionof Feed	Quantity (Kg/Cattle/Day)	Percentage (%)
1.	Grass	6.21	27.16
2.	Waste of Corn	10.40	45.47
3.	Waste of Rice	6.26	27.37
	T o t a l	22.87	100.00

The data in Table 1 shows that the amount of corn waste was the largest consumption of beef cattle (45.47 percent). Then followed by the amount of rice waste by 27.37 percent and grass 27.16 percent. Agricultural waste of food crops in the area can be relied on as cattle feed. Beef cattle farming was generally integrated with food crops (Susanti et al. 2014). Waste management strategies were needed to support the development of beef cattle.

The problem was that the quality of food crop waste was low, especially since the waste was dry. The indications need to introduce technology to improve the

quality of the food crop waste. This is because the feed given to livestock must contain good nutritional value (Saputra et al. 2016). Land under coconut trees and other unused land can be used for the development of forage for livestock. This condition shows that land for forage development in the research area was not an obstacle. However, the importance of land cannot be ignored even though its role is small (Nur et al. 2018). The grass that had been developed by several breeders in North Bolaang Mongondow Regency was dwarf grass. The results showed that forage production for 0.94 Ha could be utilized by 8.83 AU. Coconut land area of 1 Ha, if the content was calculated to be 0.8 Ha, it requires 16,000 dwarf grass seeds. Grass was planted with 1 m x 0.5 m, and the grass production obtained was 4 kg per m2. Grass under coconut trees can be cut as much as 9 times per year, resulting in 288 tons per year per Ha. The amount produced is 288 tons, which is equivalent to 22.5 AU/year (Salendu and Elly. 2012). The types of dwarf grass that can be developed in the research area can be seen in Figure 1.

Fig.1: Dwarf Grass Grown under Coconut Trees

Figure 1 shows that the land under coconuts can be used by farmers to support feed needs in the study area. The introduction of this grass had been carried out in other areas and had been well received by the farming community. The grass had been given to cattle in pens (Elly et al. 2018 a; Elly et al. 2019 b).

IV. CONCLUSION AND SUGGESTION

Based on the results of the study, it can be concluded that coconut land in the research area had the potential to be used as forage development for beef cattle. There is a need for socialization for breeders for the introduction of quality forage.

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REFERENCES

[1] Elly, F.H., A. Lomboan., Ch. L. Kaunang., M. Rundengan and Syarifuddin.2019 (b).Development Potential of Integrated Farming System (Local Cattle-Food Crops). J. Animal Production. 21 (3): 143-147.

[2] Elly, F.H. A. Lomboan, C. L. Kaunang and R. Pomolango.2019 (a). Benefits of Integrated Farming System for Cattle Crops in North BolaangMongondow Regency North Sulawesi Province, Indonesia. International Journal of Agriculture, Environment and Bioresearch (IJAEB).4 (04) : 1-5.

[3] Elly.F.H., A.H.S. Salendu, Ch. L. Kaunang, Indriana, R. Pomolango, and Syarifuddin.2018 (b).Forage Introduction to Support Development of Cattle in Sangkub District. International Journal of Environment, Agriculture and Biotechnology (IJEAB). 3 (5) : 1718-1720.

[4] Elly, F.H., A.H.S.Salendu., Ch. L. Kaunang., Indriana., Syarifuddin and R. Pomolango. 2018 (a). Empowerment of Farmers in Efforts to Develop Sustainable Cattle Farming in Sangkub District Regency of North BolaangMongondow, North Sulawesi Province, Indonesia. Proceeding The Fourth International Seminar on Animal Industry. IPB International Convention Centre,Bogor Indonesia, August, 28-30 2018.

[5] Ministry of Agriculture. 2017. Government Policy in the Development of Beef Cattle Farms in Indonesia.

Directorate General of Livestock and Animal Health, Ministry of Agriculture, Jakarta.

[6] Mulyani, A. D. Kuncoro, D. Nursyamsi, and F. Agus. 2016. Rice Field Conversion Analysis: Use of High Resolution Spatial Data Shows Worrying Conversion Rates. Journal of Soil and Climate. 40 (2) : 121-133.

[7] Nur, T.M. C. Fadli, and H. Satriawan. 2018. Analysis of Potential Integration of Oil Palm and Cattle in Bireuen District, Aceh Province.Journal of Agribusiness and Rural Develpoment Research. 4 (2) : 69-80.

[8] Romjali, E. 2018.Beef Cattle Innovation Development through a Field Laboratory Approach.Journal of Wartazoa.28 (2) : 69-80.

[9] Rusdiana, S. 2019. The Phenomenon of Meat-Originated Food Needs Can Be Fulfilled Through Increasing Beef Cattle Business In Farmers. SOCA Journal.13 (1) : 61-83.

[10] Rusdiana, Sand C. Talib. 2019. Government Policy Supports Increasing Beef Cattle Business in Breeders. SOCA: Journal of Agricultural Socioeconomics.13 (3) : 380–395.

[11] Rusdiana, Sand L. Praharani, 2018.Beef Cattle Farming Development: Beef Self-Sufficiency Policy and Feasibility of Livestock Business. Agro-Economic Research Forum. 36 (2) : 97-116.

[12] Salendu, A.H.S and F.H. Elly. 2012. Utilization of Land under Coconut Trees for Forage for Cattle in North Sulawesi. Pastura Journal. 2 (1) : 21- 25.

[13] Saputra, J.I., Limanand Y. Wid. 2016.Analysis of Beef Cattle Farming Potential Develop-ment in Pesawaran Regency.Integrated Animal Husbandry Scientific Journal.4 (2) : 115-123.

[14] Sodiq, A., P. Yuwono, Y. N. Wakhidati, A. H. Sidhi, M. Rayhanand A. Maulianto. 2018. Beef Cattle Farming Development through Cluster Program: Description of Programs and Activities. Journal of Agripet. 18 (2): 103-109.

[15] Susanti, Y, D. S. Priyarsonoand S. Mulatsih. 2014. Beef Cattle Farming Development for Economic Improvement of Central Java Province: A Regional Planning Approach. Indonesian Agribusiness Journal. 2 (2) :177-190.

[16] Yulia, L.M.,Bagaand N. Tinaprilla. 2015. The Role and Strategy of Livestock Subsector Development in the Development of Agam Regency, West Sumatra. Indonesian Agribusiness Journal. 3 (2) : 159-176.