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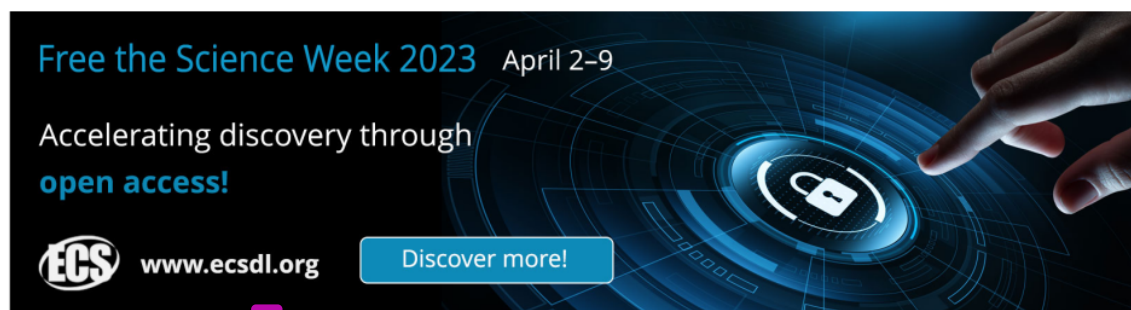
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Livestock business development of border areas in North Sulawesi Province

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Abstract. This study aims to analyze the development of livestock farming in North Sulawesi Province, especially the border areas. This research was conducted using a survey method in the border areas in North Sulawesi Province, namely the Sangihe Islands, Talaud, Siau Tagulandang and Biaro. The data are then analyzed descriptively about the number and types of livestock farms managed by the community, and market opportunities for livestock products. The results showed that livestock farming is very likely to be developed in the border area. All traditional markets in the area sell animal husbandry products in the form of meat and eggs from the city of Manado. The existence of livestock farming is still lacking, so the Regional Government needs to program animal husbandry development through development policies in the area.

1. Introduction

Livestock is one of the important parts of the agricultural sector that can sustain the development of the whole area. The livestock sector is a provider of food sources of animal protein sources that contain essential amino acids that cannot be produced by the human body. Humans need different proteins according to body weight and sex obtained by the level of household food consumption. The average protein requirement for adult men with a body weight of 55 kg is 0.57 grams/day/kg body weight, while adult women with a body weight of 47 kg require protein as much as 0.52 grams/day/kg body weight [1].

Consumption of animal protein in Indonesia is currently still low compared to standards set by the world food agency Food and Agriculture Organization (FAO). Consumption of animal protein in the Indonesian people is currently at 4.19 grams/capita/day, or equivalent to 5.25 kg of meat, 3.5 kg of eggs, and 5.5 kg of milk/capita/year. Meanwhile, the standard of animal protein consumption set by the FAO, a minimum of 6 grams/capita/day or the equivalent of 10.1 kg of meat, eggs 3.5 kg and 6.4 kg of milk/capita/year. Based on this, the food sources of animal protein must be available continuously, so that the community's needs for these food sources can be met.

North Sulawesi Province has several outer areas and is a border area with the State of Indonesia, which is located far from the capital city of Manado. These areas are Sangihe Islands Regency, Talaud Islands Regency, Siau Tagulandang Biaro Regency (Sitaro). These areas are islands which must be traveled by ship. The average population in 2017 in Talaud Islands Regency is 130,493 inhabitants, Talaud Islands Regency is 90,678 inhabitants and Sitaro Regency is 65,976 inhabitants. There is a relationship between the population and the amount of animal protein consumption in an area, where it is related to livestock farming run by a community group. The results of observations made at several



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traditional markets in the three districts, namely food sources of animal protein such as meat and eggs imported from Manado City. This situation informs us that the prices obtained by consumers will be higher because the food must be transported by sea and air transportation.

Considering that the three districts are border areas and their locations are far from the provincial capital, it is necessary to know 1) the potential market for livestock products related to the availability of food sources of animal protein sources in traditional and modern markets, 2) types of animal husbandry business that can be developed according to geographical conditions including the availability of natural resources in the three regency.

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2. Methods

2.1. Sampling methods and data collection

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This research was conducted in the border area of North Sulawesi Province which was determined by purposive sampling method, so that the research location was obtained in Talaud Islands Regency, Sangihe Islands Regency and Siau Tagulandang Biata Islands Regency (Sitaro).

This study uses two types of data, namely primary data obtained through interviews with respondents, and secondary data obtained through related agency documentation. Respondents in this study are all egg and chicken meat sellers who are engaged in traditional markets, sellers / restaurant owners, local governments and communities.

2.2. Data analysis

Data obtained through the interview method, analyzed descriptively, are further explained in depth, based on the observed variables, namely 1) market potential, 2) livestock population, and 3) types of livestock that can be developed as a business.

3. Result and Discussion

3.1. Market potential

Potential food market sources of animal protein from animal origin, can be determined based on the number of residents, the availability of meat and eggs in traditional markets, as well as the number of restaurant requests for livestock products. The market potential is explained based on the conditions of each region.

The population based on sex with age <30 years in Sangihe Island Regency is 46.03% while in Talaud Regency is 48.41%. Residents based on these data explain that the intake of animal protein sources in the body need to be consumed by the community because it is still classified as productive age. Furthermore, food from animal protein is also needed by the community, although not at productive age.

Based on the results of the study note that the availability of meat and eggs in traditional markets in the Regency of Sangihe, Talaud and Sitaro, fulfilled by traders from the city of Manado. Until now, meat and egg sellers in traditional markets get these products directly from Manado, whether reached by air or sea transportation, and have never supplied from farmers in each of the regency / cities. Based on the results of research on several restaurants in downtown Sangihe, Talaud and Sitaro Regency, it is known that the average number of broiler chicken meat requests every week is around 75-90 chicken / week, which are bought or ordered from Manado City.

3.2. Livestock population

Based on statistical data, livestock population in 2018 in the Regency of Sangihe, Talaud and Sitaro, is explained in Table 1.

Table 1. Livestock population in 2018

Type of Livestock	Islands Regency		
	Sangihe	Talaud	Sitaro
Cow	2,029	1,677	27
Goat	5,830	2,490	597
Pork	52,938	24,700	11,998
Laying hens	5,298	-	741
Broilers	66,925	24,702	5,804
Kampong chicken	110,036	33,662	55,631
Duck	4,238	8,271	1,769

Based on Table 1 it is known that the population of livestock in Sangihe Islands Regency in 2018 was 2,029 tail of cattle, 5,830 goats, 52,938 pigs. For poultry, it consists of laying hens, broilers, free-range chickens, and ducks. The number of poultry in 2018 was 5,298, 66,925, 110,036 and 4,238, respectively. Meanwhile, meat and egg production in 2018 were 1,069,950 kg and 84,094 kg, respectively [2].

The livestock population in the Talaud Islands Regency is only 1,677 beef cattle in 2018. The small livestock population, namely goats and pigs in 2018, are 2,490 and 24,700, respectively. The population of poultry, namely native chickens in 2018 were 33,662 while broilers were 24,702, while the duck population was 8,271. Meat production has increased in 2018 [3].

Types of livestock raised in Kep Regency. Sitaro includes large livestock such as cattle, goats, pigs, and also poultry such as ducks and chickens. In 2018 there were 27 cattle, 597 goats, and 11,998 pigs. There were also 1,769 ducks, 741 laying hens, 5,804 broilers, and 55,631 native chickens [4,5].

3.3. Potential of animal husbandry

Regional economic potential is defined as the economic capabilities that exist in the area that are possible and feasible to be developed so that they will continue to develop as a source of livelihood for the local people and can even encourage the regional economy as a whole to develop on its own and sustainably [4].

Based on the results of the analysis of the population of livestock business in Table 1, it is known that livestock farming that can be developed in the three Regency, namely cattle farming, broiler farming and laying hens. This situation is in accordance with the analysis of demand that has not been fulfilled by farmers who come from these areas, so it must be obtained from outside, such as the city of Manado.

The potential for livestock farming mentioned above must be supported by government programs in the three regency. This is because business development needs to be supported by business facilities that support one another [6]. Regional government support can be in the form of capital, policies related to the development of smallholder farms, as well as an increase in the number of special budgets in agriculture through the Regional Revenue and Expenditure Budget.

4. Conclusion

Livestock farms that have the potential to be developed in the border area are cattle farms, broiler farms and laying hens. The development of livestock farming requires support from the local government through a program accompanied by a budget.

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