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Analysis of Factors Affecting Sheep Production at Dompet Dhuafa's Livestock Center in Deli Serdang District

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ABSTRACT

Dompet dhuafa is the largest sheep center in Deli Serdang District. Some of the factors that affect sheep farming production are area, livestock, labor, and cost. The aim of the study was to analyze the effect of the number of livestock, housing capacity, labor, feed, seed sources, and health on fattening sheep production in the study area. The sampling technique consisted of primary data and secondary data. The collection was done by interview technique using questionnaire data. The data analysis method used is multiple linear regression and SWOT analysis. The results of the study that there was an influence the number of livestock (X1), cage capacity (X2), feed (X4) and health (X6) on fattening sheep production (Y), while for the variables, labor (X3) and seed sources (X5) did not influence the production of fattening sheep (Y) in the study area. The results of the swot analysis on the development strategy or aggressive strategy consistsed of 4 strategies of 1. Making Dompet Dhuafa a producer of sheep, 2. Developing human resources for productive breeders, 3. Establishing continuous cooperation with agents and consumers, 4. Increase the number of sheep population. In conclusion that various factors influence productivity, which helps in understanding and optimizing these factors to improve the efficiency and productivity of sheep production in the Dompet Dhuafa.

Keywords: *Dompet Dhuafa's Livestock Center, Human Resources, Producer, Productivity, Sheep Farming*

1. Introduction

Livestock has an important role in meeting the food needs of the community, especially from the sheep farming sector. Sheep farming in Indonesia, especially sheep farming, met the meat needs of 17,833,732 tons in 2019, and in 2018 of 17,611,392 tons. North Sumatra is one of the most important industrial regions in Indonesia. North Sumatra has a high population of livestock, especially sheep. Based on data from the Central Agency of Statistics [1], the sheep population in 2020 was 721,565 heads and experienced an increase in population in 2021 to 746,591 heads. Dompet Dhuafa (DD)'s livestock center is located in Bulu Cina Village, Hamparan Perak District, Deli Serdang Distric, about 19 km from Medan City. The farm area is half a hectare, the cage area is 135 x 50 meters and the cage building is 55 x 25 meters. The sheep population at the DD livestock center is around 300 heads and the type of sheep is the fat tail sheep (DEG). In Hamparan Perak District, Deli Serdang Distric, sheep population's was 134,267 heads and the sheep meat production was 76,536 kg in 2019. Sheep farming is the process of producing meat for the community that requires production factors such as land, livestock, labor, and capital. Three components, namely rearing, feeding and breeding, determine the success of sheep farming. Farmers' income is influenced by the socioeconomic characteristics of

raising fattening sheep. Based on the above description, the researcher wants to evaluate the various factor that affect sheep production at Dompet Dhuafa (DD)'s livestock center in Deli Serdang Distric.

2 Methods

The determination of the study area was done purposively. The study was conducted in Bulu Cina Village, Hamparan Perak Sub-District, Deli Serdang Distric. DD is one of the places of business of sheep farming. The research was conducted from July-October 2022.

1.1 *Data Collection Methods*

The data collected consisted of primary and secondary data. Primary data was obtained from interviews and direct observation of farmers at the DD livestock center location using a form (questionnaire).

1.2 *Descriptive Analytic*

Descriptive analysis is used in this study to describe the state of sheep farming resources at DD livestock centers. The parameters to be studied are as follows:

2.2.1 Multiple Linear Regression Analysis

The author uses multiple linear regression equations in this study because there is more than one independent variable in the study.

2.2.2 SWOT Analysis

This analysis is based on logic that can maximize strengths and opportunities, but also maximize weaknesses and threats [2].

2 Result and Discussion

In this study, the test results show that the constant value is 21.725, which indicates that the value of Y has decreased by 21.725 if other variables are considered constant. The partial effect test determines whether some independent variables have a significant effect on the dependent variable. This is due to the fact that labor is responsible for raising sheep, maintaining them, giving them food, water and other things necessary to ensure that the sheep are healthy so that the farmer's production can increase.

The statistical test results show that the regression coefficient of livestock numbers (X1) has a value of 375, which indicates that the use of livestock numbers has an impact on increasing sheep fattening production in the study area. Based on the test criteria, it can be concluded that differences in livestock numbers do affect the performance of sheep fattening in the study area.

2.1 Linear Regression

Table 1. Linear Regression

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	21.725	.000		.	.
	Population of livestock	.375	.000	.492	.	.
	Cage Capacity	.900	.000	.815	.	.
	Labor	-2.175	.000	-1.876	.	.

	Feed	.275	.000	.246	.	.
	Source of livestock	-.700	.000	-.419	.	.
	Healthcare	.394	.000	.357	.	.

The regression coefficient of cage capacity (X2) is 900, which is positive, indicating that cage capacity influences larger sheep fattening enterprises in the study area. Based on the test criteria, it can be concluded that the capacity of the pen should be proportional to the number of sheep to be kept in it.

Labor input in the study area has an impact on decreasing sheep fattening production in the study area, with a negative regression coefficient of labor (X3) of -2.175. By considering the test criteria, it can be concluded that the labor variable really affects sheep fattening production in the study area. [3] stated that livestock production is related to the amount of labor.

The regression coefficient of feed (X4) is 275, which indicates that feed affects the fattening ability of sheep in the study area. Farmers are more productive with more feed. One reason is that a larger amount of feed makes fattening sheep production easier and more efficient. According to [4], forage feed production improves sheep enterprises.

The regression coefficient of seed source (X5) of -700 is negative, which indicates that the production of fattening farmers has decreased due to the use of seed source in the study area. Based on the predetermined test criteria, it can be concluded that the seed source variable has a significant impact on sheep fattening production in the study area.

The regression coefficient value of health (X6) of 394 is positive, which indicates that the utilization of health in the study area has an impact on increasing sheep fattening production in the study area. Based on the test criteria, it can be concluded that the health variable significantly affects sheep fattening production in the study area.

2.2 Internal and External Factors

DD's livestock center has more strengths than weaknesses, as shown by the evaluation matrix of internal factors of sheep farming shown in Table 2. The results of the internal factor analysis show that the strengths are greater than the weaknesses.

Table 2. Internal Factors

Analysis	No	Internal Factors	Value	Rating	Score
	1.	Availability of livestock	0,08	3	0,26
	2.	The ease of keeping sheep	0,13	4	0,52
Stregth	3.	Age of Farmer	0,13	3	0,39
	4.	Forage is easy to obtain	0,08	3	0,26
	5.	Good cage sanitization	0,13	4	0,52
Totally					2,0
	1.	Farmer's experience is still lacking	0,08	2	0,17
	2.	Traditional Livestock Farming Technology	0,08	2	0,17
Wekness	3.	Utilization of technology is still lacking.	0,08	3	0,26

	4.	dare not create change	0,08	3	0,26
	5.	Transportation facilities are lacking	0,086	3	0,26
Totally			**1,0**		1,0

(Source : Primary Data Processing Results, 2022)

The results of the analysis of external factors show a positive value, opportunities are greater than threats.

1. Livestock density is still rare

Based on the research results, the density of livestock in DD is still relatively rare. When the density decreases, the number of livestock can also increase [5]. Not only are there livestock, but the land can also be used for farmers.

2. Production facilities are easy to obtain

Farmers and businesses can increase their production capacity by obtaining equipment and production facilities that are more easily accessible at urban building stores. This is in accordance with [6] whom mentioned that farmers should get facilities such as equipment more easily to enhance their productivity.

3. High feed availability and carrying capacity

The capacity to increase the ruminant population is how much an area has the potential to increase the ruminant population based on the availability of forage in the area. High availability of forage feed is the next opportunity [7].

4. There is a large capacity for additional livestock

DD farm still have a large capacity to add more livestock. Based on the results of the research, there is a capacity for additional sheep livestock in DD. The addition of sheep is based on the availability of agricultural and plantation forests. The addition of this livestock is a good opportunity for the sheep population to increase. This is in accordance with [8] that mentioned availability of land for pasture will facilitated a good sheep population.

5. Establishing sustainable cooperation with agents and consumers

By building good relationships and cooperating with agents, farmers are expected to produce better quality livestock in accordance with consumer expectations and can meet market needs. [9] [9] concluded in his research that interdependence, flexibility, expectations for long-term cooperation, and the quality of partnerships in the distribution channel industry are antecedents that affect strategic integration which has an impact on company performance.

Tabel 3. External Factors Evaluation Matrix

Analysis	No	External Factors	Value	Rating	Score
Oppurtunity	1	Livestock density stabilized	0,13	3	0,40
	2	Means of Production Easily Available	0,13	3	0,40
	3	Large livestock addition capacity.	0,09	3	0,27
	4	High feed availability and carrying capacity.	0,13	4	0,54
	5	Establish sustainable cooperation with agents and consumers	0,09	4	0,36
Totally					2,0
Threat	1	Farmers tend to sell their products to agents rather than directly.	0,09	3	0,27
	2	Climate Change/Rainy Season	0,09	3	0,27
	3	Location is difficult to reach	0,09	2	0,18
	4	Disease outbreaks and livestock health issues are a regular occurrence.	0,04	2	0,18
	5	Market competition	0,09	3	0,27
Sub Total			**1,0**		1,0

(Source : Primary Data Processing Results, 2022)

To find alternative strategies for developing sheep in DD's livestock center, the SWOT matrix, which is an extension of the Ifas and Efas matrix analysis, was used. The qualitative formulation of alternative strategies using the SWOT matrix was combined to provide an overview of strategies that included four potential options.

Table 4 shows the results of the SWOT matrix.

1. Making DD a sheep producer
   The high demand for sheep at the DD livestock center means that this area can be used as a sheep production center. Not only as a local producer, but it can also be used as an export livestock producer. [10[mentioned that a good sheep production center grows bigger by a good networking which increase demand.
2. Improving livestock production and quality
3. The goal is to increase the demand for sheep meat to maintain high prices and demand, so that the livestock business can survive and is expected to be even better. The high interest of consumers to consume meat will automatically spur the enthusiasm of farmers to increase their production [11]. With the awareness of farmers

   Farmers are expected to master sheep farming technology to improve quality and overcome existing problems in the development of sheep farmers. The awareness and independence of breeders are mostly in the high category, 20% in the very high category and 10% in the moderate category.

4. Conclusion

DD Livestock has the potential of natural resources for the development of sheep farming which can be seen from human resources, natural resources and sufficient feed carrying capacity and good livestock management.

Research processing or questionnaire calculations, which are carried out using multiple linear regression, show that there is a relationship between the number of livestock, cage capacity, feed and health to the production of sheep fattening, while for variables, labor and seed sources are not real to the production of sheep fattening in the study area.

Table 4. Matrix of Sheep Development in Dompet Dhuafa Livesock Center

Internal Factors / External Factors	*Strength*	*Weakness*
	1. Management of Sheep is easy 2. Good cage sanitation 3. Productive age of sheep farmers 4. Cattle food forage is easy to obtain 5. Seed availability	1. Lack of courage to create change 2. Lack of transportation facilities 3. Lack of breeder experience 4. Traditional livestock cultivation technology 5. Less technology utilization
Opportunities	Strategy S-O	Strategy W-O

1. High feed availability and carrying capacity 2. Livestock density is still sparse. 3. Production facilities are easy to obtain 4. Establish a good relationship with agents 5. There is a large capacity to add livestock	1. Making DD a producer of sheep livestock 2. Developing human resources for farmers who are still productive 3. Establishing sustainable cooperation with agents and consumers 4. Increase the number of sheep population	1. Making Increase experience for breeders 2. Utilize new technologies and innovations on sheep farming 3. Assistance with both inputs and seeds by the government 4. The application of good and correct technology to increase and expedite the production process. 5. Utilizing and developing breeder service facilities.
Threats	Strategy S-T	Strategy W-T
1. Making Farmers tend to sell their products to agents rather than breeders 2. Climate change / rainy season 3. The existence of competition. 4. Disease outbreaks and livestock health problems that routinely occur. 5. Affordable location	1. Making Improve livestock quality 2. Increase knowledge of livestock technology and utilize it 3. Educate farmers about the market to reduce the influence of agents. 4. Socialize about cage health and hygiene 5. Facilitate farmers to sell their livestock to animal markets 5.	1. Making Provide or plant livestock forage resources around the enclosure 2. Adding infrastructure facilities to support the development of sheep breeders 3. Optimizing policies by existing agencies 4. Conducting socialization and cooperation between breeders to increase knowledge in technology in animal husbandry 5. Conducting evaluations in coaching all breeder activities

SWOT of sheep livestock development in Dompet Dhuafa's livestock center obtained a development strategy or an aggressive strategy consisting of 4 strategies, namely making Dompet Dhuafa's livestock center as a producer of sheep livestock, developing human resources for farmers who are still productive, establishing continuous cooperation with agents and consumers, increasing the number of sheep population.

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