ANALYSIS OF TECHNICAL ASPECTS OF MANAGEMENT AND DEVELOPMENT STRATEGY OF PEOPLE'S GOAT FARM IN DELI SERDANG DISTRICT NORTH SUMATRA

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Abstract

Market demand for goat milk has increased in recent years, but has not been fulfilled due to limited production. This is not only due to the low population and productivity of existing dairy goats, but also possibly due to the fact that breeders have not applied the principles of good dairy farming (Good Dairy Farming Practices) . In the province of North Sumatra, in particular Deli Serdang Regency is one of the districts in North Sumatra which has quite a large population of goats. Study aim 1) to analyze the technical aspects of the processing of people's goat farms in accordance with the principles of Good Dairy Farming Practice (GDFP) ; and 2) To aim to formulate a suitable development strategy in Deli Serdang Regency, North Sumatra . The research method used survey method sourced from primary data and secondary data. Results study show that 1) the average value of Good Dairy Farming Practices (GDFP) on smallholder goat farms in Deli Serdang Regency is in the fairly good category in accordance with the principles of GDFP. The highest GDFP average value is in the aspect of feed and drinking water of 3.30 (good category). The lowest value is in the livestock health aspect of 2.80 (good enough category); and 2) the development strategy for people's goat farms in Deli Serdang Regency is to increase the economic maintenance scale, increase the technical capabilities of breeders through intensive training and counseling, a competitive marketing system, and cooperation between breeders.

Say Key: *Good Dairy Farming Practices , Livestock Goat, And Deli Serdang*

INTRODUCTION

Livestock is one of the land use businesses that needs attention. So far, the government's attention to the livestock sector has been directed more towards programs to increase the production of livestock products which involve large investors who are full of subsidies, even though behind that there is the role of breeders in terms of management and natural conditions that are more dominant. Livestock business is expected to directly touch the community with lighter capital and relatively small risks in terms of losses, and one of the relevant livestock business options is goat farming (Nurul, 2011).

Goats produce functional value as milk and meat producing goats. According to BPS (2011), the average increase in the goat population every year is 2.91%/year and has the potential to be developed. This supports an almost even distribution of livestock throughout Indonesia.

Market demand for goat milk has increased in recent years, but has not been fulfilled due to limited production. This is not only due to the low population and productivity of existing dairy goats, it is also possible that farmers have not applied the principles of good livestock farming (*Good Farming Practices*) . *Good Dairy Farming Practices* is the management of dairy goat farming which includes all technical and economic activities in terms of daily maintenance such as reproduction, feeding methods and systems, sanitation, and disease prevention and treatment. Increasing milk production and quality can be done by technical improvements or management of livestock raising. Starting from the aspects of seeds and reproduction, feed and drinking water, maintenance management (management), cages and equipment as well as livestock health aspects. *The* application of technical aspects by taking into account and taking into account good governance will increase the efficiency of the dairy farming business.

Deli Serdang Regency is one of the regencies in North Sumatra which has a sizable population of goats, namely 135,418 in 2019 and decreased to 129,322 in 2020 (Department of Food Security and Animal Husbandry, 2020). Goat farming in Deli Serdang district is still a people's livestock business. People's farming is traditional in nature which is characterized by small-scale businesses, the technology generally used is still traditional, with simple management. Goat farming is a side business of the community, so goat farming, which should be used as the main livelihood, is not fully capable and supports the community's economy, especially the people in Deli Serdang district.

RESEARCH METHODOLOGY

Research Materials

The material used in this study was 15 people's goat farms in Deli Serdang Regency. By taking samples using a census with *total sampling* . The use of this method is based on the consideration that the population is relatively small and easy to reach.

The data used in this study are primary and secondary data. Primary data was obtained from a questionnaire compiled based on the criteria of *Good Dairy Farming Practice* (GDFP) which refers to the modified FAO (2011). The questionnaire was modified according to the needs in order to develop the current people's goat farms. Secondary data, namely data obtained from recording during research, literature studies, related agencies and research results that are relevant to the research problem.

Descriptive Analysis

Descriptive analysis is used to describe the characteristics of breeders. Aspects of GDFP observed in this study included breeding and reproduction, management of feed and drinking water, maintenance management (management), pens and equipment and livestock health (IDF/FAO, 2011). The results of the evaluation of the GDFP aspect are then given a quality value as shown in Table 1.

Table 1. Farmer's Technical Skill Conversion Value

GDFP mean value	Quality Value	Information
0.00-0.50	E	Very bad
0.51-1.00	D	Bad
1.01-2.00	C	Not good
2.01-3.00	B	Pretty good
3.01-4.00	A	Good

EFAS analysis *(External Strategic Factors Analysis Summary*) **IFAS** (*Internal Factors Analysis Summary*)

Determining the value of the weight used the AHP (*Analycal Hierarchy Process*) technique. with computer software excel program. According to Saaty (2007) the AHP method is a method for being able to organize information and various decisions rationally (*judgment*). The environmental weight score is adjusted to the IE (*internal external*) matrix. To determine the score, the following formula is used:

SN = BN x RN

Information:
SN = Value Score
BN = Value Weight
RN = Value Rating

SWOT analysis (*Strengths Weaknesses Opportunities Threats*)
Analysis is used to determine the internal and external influences of people's goat farming on the strengths, weaknesses, opportunities and threats as well as the formulation of development strategies based on the potential of Deli Serdang Regency. Formulating strategic decisions can be described in the SWOT analysis matrix as follows:

Table 2. SWOT Analysis Matrix

IFAS / efas	Strengths (S) Define internal strength factors	Weaknesses (W) Define internal weakness factors
Opportunities (O) Determine the external opportunity factors	**SO strategy** Create a strategy that uses the power to take advantage of opportunities	**WO strategy** Create strategies that minimize weaknesses to take advantage of opportunities
Threats (T) Determine external threat factors	**ST Strategy** Create strategies that use strengths to overcome threats	**WT Strategy** Create strategies that minimize weaknesses to avoid threats

Source: Freddy Rangkuti, 2015.

RESULTS AND DISCUSSION
Breeder Characteristics
Characteristics of breeders such as age, education and length of farming have an effect on the sustainability of a farm. Characteristics of breeders is one of the important meanings in doing something because the characteristics of one of the driving forces in developing a livestock business, especially increasing the population, are getting better. The characteristics of breeders are presented in Table 3.

Table 3. Characteristics of People's Goat Farms

No	Characteristics breeder	Amount (person)	Percentage (%)
1.	Age (years)		
	20-30 (young)	3	20.00
	31-45 (medium)	10	66,67
	46-55 (old)	2	13,33
2.	Education		
	SD	1	6,67
	JUNIOR HIGH SCHOOL	2	13,33
	SENIOR HIGH SCHOOL	12	80.00
3.	Experience (years)		
	1-6	15	100
	7-12	0	0
	>12	0	0

The results of the observations show that the experience of the respondent breeders in Deli Serdang Regency is 1-6 years. Experience in farming is a factor that is no less important in supporting farming activities . . This is supported by Handoko's statement (2014) which states that experience is something factor Which influence ability somebody in operate his efforts.

Evaluation of the Implementation of Good Dairy Farming Practice
Aspects of Livestock Breeding and Reproduction
Table 4. Livestock GDFP values in breeding and reproduction aspects

No.	Defining factor	GDFP value	GDFP category
1.	Raised goats	3.60	Good
2.	Marriage System	3,20	Good
3.	Selection Method	3.00	Pretty good
4.	Birth Distance	3,20	Good
5.	Knowledge of Lust	2.86	Pretty good
6.	Number of marriages for one pregnancy	2.53	Pretty good
	Average	3.00	Pretty good

The average GDFP score in Deli Serdang Regency on the aspects of seeds and reproduction is 3.00 , which means it is included in the pretty good category as shown in Table 4 above. Selection of good sires and males will also encourage superior seed yields, superior seeds are obtained from natural mating. The factor that really determines the level of success in animal husbandry is the availability of seeds, both quality and quantity. Seed quality is determined by genetic and environmental factors (Mulyana and Sarwono, 2007).

Aspects of Feed and Drinking Water
Table 5. Livestock GDFP values in the aspects of feed and drinking water

No.	Defining factor	GDFP value	GDFP category
1.	The amount of forage given	4.00	Good
2.	Frequency of Administration	3.00	Pretty good
3.	Concentration Giving	2,20	Pretty good
4.	Provision of drinking water	4.00	Good
	Average	3.30	Good

In the aspect of feed, it is in a good category with a value of 4.00 because the provision of forage to livestock is in accordance with the needs of livestock, namely an adult goat requires 5-6 kg of forage/head/day, heifers 25-3 kg/head/day and for young goats 1 -2 kg/head/day and 0.5-1 kg/head/day fortifier (livestock service).

Management Aspect (Maintenance)
Table 6. Livestock GDFP value in the management aspect

No.	Defining factor	GDFP value	GDFP category
1.	Cage Cleaning	3.00	Pretty good
2.	Use of dirt	3.60	Good
3.	Milking	3,20	Good
4.	Drying of lactating goats	2.80	Pretty good
5.	Recording	2.00	Pretty good
	Average	2.92	Pretty good

The high value of applying GDFP to the utilization of sewage is 3.60, which is included in the good category. Thus breeders use goat manure as organic fertilizer for plants. Goat manure if treated properly will not damage pollution but will be something useful for plants, namely being able to be converted into compost (organic fertilizer) which has high quality besides being able to generate quite a large amount of money (Pamungkas & Pamungkas, 2019).

Aspects of Cages and Equipment
Table 7. Livestock GDFP values in the aspect of cages and equipment

No.	Defining factor	GDFP value	GDFP category
1.	Place the cage	3,40	Good
2.	Cage construction	3.00	Pretty good
3.	Dirt place	3,20	Good
4.	Cage efficiency area	3.00	Pretty good
5.	Cage equipment	2.40	Pretty good
	Average	3.00	Pretty good

The location of the cage is separate from the house and away from crowds with a distance of 5-9 m and close to agricultural land, and sunlight must be able to penetrate the cage. The cages at the study site used the type of cage on stilts with a height of ±1.5 m from the ground. The floor of the cage is made of bamboo to make it easier to clean and make it easier for dirt to fall to the floor so that the conditions in the cage are not dirty and the cattle feel comfortable.

Livestock Health Aspects
Table 8. Livestock GDFP value on the health aspect

No.	Defining factor	GDFP value	GDFP category
1.	Disease Knowledge	3.00	Pretty good
2.	Disease Prevention	2.60	Pretty good
	Average	2.80	Pretty good

Knowledge about goat diseases is very limited so that the ability of breeders to prevent disease is also very limited. Obtained from the livestock health aspect, the average value obtained was 2.80, included in the fairly good category.

Internal Environment Identification
Table 9. The internal environment of people's goat farms

Internal factors	Weight	Ratings	Weight x Rating
Strength (S) :			
1. Availability of large land	0.24	3	0.72
2. Utilization of faeces	0.24	3	0.72
3. Selection of seeds	0.20	3	0.60
Weaknesses (W):			
1. Less farming experience	0.16	2	0.32
2. Low marketing system	0.16	2	0.32
Total	1.00		2.68

External Environment Identification

Table 10. External environment of smallholder goat farms

External Factors	Weight	Ratings	Weight x Rating
Probability (O) :			
1. Consumer Purchasing Power	0.20	3	0.60
2. Employment	0.20	3	0.60
3. Increased Revenue	0.24	3	0.72
Threat (T):			
1. Business competition	0.20	2	0.40
2. High disease risk	0.16	2	0.32
Total	1.00		2.64

Determination of strategic suitability through internal external matrix cells. The total weight score for the internal environment is 2.68 and the total score for the external environment is 2.64. The Internal External (IE) matrix cells show the position of people's goat farms in cell V. Rangkuti (2015) states that the position of the IE matrix is in cell 5. The development strategy used is a growth strategy through horizontal integration and stability, namely increasing business scale, market penetration, and processed product diversification. IE (internal external) matrix cells are presented in Figure 1.

		Internal Factor Weighted Total Score		
		Strong 3.0-4.0	Average 2.0-2.9	Weak 1.0-1.9
Total External Factor Weight Score	Tall 3.0- 4.0	I growth (vertical integration)	II growth (horizontal integration)	III Retrenchment (Shrinkage)
	Currently 2.0- 2.9	IV Stability (Be careful)	V growth (horizontal integration and stability)	VI Retrenchment (divetation)
	Low 1.0- 1.9	VII growth (Concentric Diversification)	VIII growth (Conglomerate Diversification	IX Retrenchment (liquidation)

Figure 1. Internal External (IE) Matrix

SWOT Matrix

After determining the internal factors, namely the strengths and weaknesses and external factors the opportunities and threats, then determine the strategies for the development of smallholder goat farming businesses in Deli Serdang Regency which are analyzed using the SWOT matrix.

Table 11. SWOT analysis matrix of smallholder goat farms

Internals \\ external	Strength (S) 1. Availability of large land for goat farming 2. Utilization of faeces is used as fertilizer 3. Selection of good seeds	Weakness (W) 1. Lack of farming experience and skills 2. Low marketing system for products
Chance (O) 1. Increased consumer purchasing power 2. More available job opportunities 3. Increased income	**SO strategy** Increasing the population of small-scale goat farming businesses (S1, S2, S3, O1, O2, O3)	**WO strategy** Expand product marketing reach to increase purchasing power (W2, O1, O3)
Threat (T) 1. Increasing livestock business competition 2. High risk of disease	**ST Strategy** Collaborating with other breeders to improve livestock business (S1, S3, T1)	**WT Strategy** Conduct training or counseling on a scale (W1, T2)

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

1. The results of the technical evaluation based on the average value of *Good Dairy Farming Practices* (GDFP) on smallholder goat farms in Deli Serdang Regency are in a fairly good category in accordance with the principles of GDFP. The highest GDFP average value is in the aspect of feed and drinking water of 3.30 (good category). The lowest value is in the livestock health aspect of 2.80 (good enough category).

2. Based on the SWOT analysis, it was found that the development strategy for smallholder goat farms in Deli Serdang Regency was to increase the economic maintenance scale, increase the technical capabilities of breeders through intensive training and counseling, a competitive marketing system, and collaboration between breeders.

Suggestion

Need to improve technical aspects, especially animal health and management. Recording is needed to evaluate business performance. Improving the provision of concentrates so that they pay attention to the needs of livestock and are available on an ongoing basis. The people's goat development policy needs serious attention from the government and the right decision makers .

BIBLIOGRAPHY

[1].Department of Food Security and Animal Husbandry. 2020. In Numbers. Deli Serdang Regency. North Sumatra Province.

[2].Directorate General of Livestock. Questionnaire list of livestock determinants. Report of Implementation Meeting on Determining Factors Trial and Planning of Livestock Sub-Sector Extension System. Jakarta (ID): Graha Wisata Pramuka.

[3].Directorate General of Livestock. 2006. *Goat and Sheep Breeding Guidelines.* Jakarta. Dirgantoro, F. 2004. Manage Your Career. Jakarta: Elex Media Komputindo.

[4].Directorate General of Livestock and Animal Health. 2019. Livestock and Animal Health Statistics 2019. Jakarta: Directorate

[5].[FAO-IDF] *Food and Agriculture Organization of the United Nations International Dairy Federation Foods.* 2011. *Guide to good dairy farming   practices.* Rome (IT): FAO-IDF.

[6].[IDF] *International Dairy Federation* . 2008. *Guide to Good Animal Welfare in Dairy Production. Brussels* (BE): International Dairy Federation.

[7].Pamungkas, SST, & Pamungkas, E. (2019). Utilization of Goat Manure as an Additive to Organic Fertilizer for Oil Palm (Elaeis guineensis Jacq.) Growth AT PRE-NURSERY. 15(1)

[8].Rangkuti, F., 2015. SWOT Analysis: Dissecting the Business Case. Jakarta: Gramedia Pustaka Utama