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The Performance Of Cattle Dairy Business (Case Study In Senduro District, Lumajang Regency)

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ABSTRACT

This study aims to analyze the performance of dairy cattle farming businesses in Senduro District, Lumajang Regency, by identifying factors that influence the production and income of farmers. The variables analyzed include the number of lactating dairy cattle, the amount of green fodder per day, the amount of additional feed per day, the age of farmers, education level, livestock farming experience, the number of household members, the number of workers, training that has been attended and extension in livestock farming. The approach used is quantitative descriptive with multiple linear regression analysis methods.

The results of the study showed that simultaneously all independent variables had a significant effect ($P < 0.05$) on the performance of livestock farming businesses. Partially, the variables of the number of lactating cows, the amount of concentrate feed, and the number of family members showed a significant effect ($P < 0.05$) on the performance of dairy farming businesses in Senduro District.

The conclusion of this study is that the success of dairy farming businesses is greatly influenced by the management of production inputs, especially in terms of the number of productive cows and the efficiency of feeding. This study is expected to be a reference in the development of dairy farming businesses and improving the welfare of farmers in highland areas.

Introduction

Dairy cow's milk is an important source of nutrition for the community because of its very complete nutritional content [1]. In 2024, the need for milk in Indonesia is 4.7 million tons while domestic milk production is 1 million tons or around 21 percent and imports are 3.7 million tons or around 79 percent [2]. Based on these data, it can be seen that the increase in consumption needs is not balanced by domestic milk production.

The slow increase in milk production is because the dairy cow population in Indonesia is not evenly distributed across all provinces. Java Island has a significant contribution to the dairy cow population in Indonesia, namely around 98.40% of the dairy cow population is on the island of Java while 1.60% is outside Java [3].

This low production capacity is one of the main problems that must be addressed immediately in order to realize national food security, especially in relation to the nutritious food program initiated

by the President-elect for the 2024-2029 period. The Free Nutritious Meal Program (MBG) initiated by the government aims to increase public access to quality food sources, including milk and its processed products. This program focuses on increasing public nutritional consumption, especially for vulnerable groups such as children, pregnant women, and the elderly. The success of the implementation of this program is highly dependent on the availability and stability of national milk production. In addition, this program not only requires a supply of milk to improve the nutritional quality of the community, but also opens up great opportunities for local dairy farms to develop because the absorption of domestic milk production will be prioritized [4]. Lumajang Regency is a Regency in East Java as a producer of dairy cows. The population of dairy cows in Lumajang Regency in 2024 data was 5,293 with the largest population in Senduro District at 5,065 with dairy cow milk production data of 2,583,914 kg with a total of 1,325 farmers in 2024 [5]. Based on the data above, dairy cow milk production in Lumajang Regency is still very low in meeting domestic milk production needs. Based on the problems and opportunities in the conditions above, researchers need to conduct research on the performance of dairy cattle farming businesses in Senduro District, Lumajang Regency in order to provide a comprehensive picture of the factors that influence it. This analysis is expected to be a scientific basis for policy makers, business actors, and farmers in developing integrated strategies. Thus, the analysis of the performance of dairy cattle farming businesses in Senduro District, Lumajang Regency is very relevant in evaluating the readiness of the dairy cattle farming sector in supporting government programs to meet domestic milk production needs more optimally. The purpose of this study is to describe the profile of dairy farmers in Senduro District, Lumajang Regency, analyze the feasibility of dairy cattle farming in Senduro District, Lumajang Regency and analyze the relationship between factors that influence the performance of dairy cattle farming businesses in Senduro District, Lumajang Regency.

Method

The research design used is quantitative description and data analysis using multiple linear regression. Statistical regression is used to analyze the influence of the relationship between variables. According to [6] one of the benefits of regression analysis is to predict an event that will occur by analyzing the causes that may influence the event.

The research location was conducted in Senduro District, Lumajang Regency. Senduro District was chosen because the center of dairy farming in Lumajang Regency is in Senduro District. The number of samples used in the study was 92 farmers. The determination of the sample in this study was Purposive Sampling, previously observations and initial data collection were carried out with the requirement of having at least 1 lactating cow. Primary data was obtained by conducting direct interviews by filling out questionnaires on dairy farmers.

The dependent variable in this study is the performance of dairy cattle farming, while for the independent variables there are 10 variables observed, namely the number of lactating dairy cattle, the amount of green fodder per day, the amount of additional feed per day, the age of the farmer, education level, livestock farming experience, number of household members, number of workers, training that has been attended and counseling that has been attended. The multiple linear regression formula is as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10}$$

Y : Dairy Cattle Farming Business Performance (liters/day/head)

a :Constant

b₁-b₁₀ : Regression Coefficient

X₁ : Number of lactating dairy cattle (head)

X₂ : Amount of green fodder per day (kg)

X3 : Amount of concentrate feed per day (kg)

X4 : Age of farmer (years)

X5 : Education level (years)

X6 : Livestock farming experience (years)

X7 : Number of household members (people)

X8 : Number of workers (people)

X9 : Training attended (times)

X10 : Extension attended (times)

Results and Discussion

dairy farmer profile

Table 1. Dairy farmer education

No	Keterangan	Jumlah Peternak (orang)	%
1	Tidak Sekolah	3	3,260
2	SD	60	65,22
3	SMP	16	17,39
4	SMA	13	14,13
Jumlah		92	100

Education among farmers in Senduro District is still low with a percentage of 65.22% having elementary school education, this shows that the literacy level of dairy farmers is relatively low which has an impact on decision making related to dairy cattle businesses that are less appropriate and affect the success of dairy cattle farming businesses. According to [7] a person's education is an indicator that reflects the ability to complete a type of work and responsibility. Education is needed in running a business, including in running a livestock business. Adequate education can help the community in efforts to increase livestock production and livestock business capabilities. In agreement with [8] that education affects livestock businesses in technical aspects, management and management of dairy cattle farming businesses.

Table 2. Age of dairy farmers

No	Umur (tahun)	Jumlah Peternak (orang)	%
1.	< 45	60	65,22
3.	> 45	32	34,78
Jumlah		92	100

Based on the results of interviews with 92 dairy farmers in Senduro District, the age of dairy farmers in Senduro District in the largest percentage is at the age of <45 years at 65.22% which is the productive age. Productive age indicates that farmers are still active in managing their business and technology [8]. According to [9] strong physique is able to meet the preparation of animal feed taken from grass fields, thus productive age is expected to be able to minimize risks in the dairy cattle business.

Table 3. Lactating cow ownership

No	Jumlah Sapi Laktasi (ekor)	Jumlah Peternak (orang)	%
1.	≤ 6	85	92,39
2.	> 6	7	7,61
Jumlah		92	100

Based on the results of direct interviews with 92 dairy farmer respondents, the majority of dairy farmers in Senduro District, Lumajang Regency own ≤ 6 lactating dairy cows with a percentage of 92.39%, meaning that the number of lactating cows owned in Senduro District is on a small scale.

Table 4. Dairy cattle farming experience

No	Lama Beternak (tahun)	Jumlah Peternak (orang)	%
1	< 5 tahun	7	7,61
2	> 5 tahun	85	92,39
Jumlah		92	100

Based on the results of interviews with 92 farmers, the results of the dairy cattle farming experience of farmers in Senduro District with more than 5 years of experience were 85 farmers with a percentage of 92.39%, meaning that dairy farmers in Senduro District have quite a long farming experience. According to [7], farming experience is the length of time that farmers have gone through in running a business, the longer the experience the farmer has, the wiser he will be in making decisions. The same opinion was expressed by [10] that farmers who have a higher level of experience in the dairy cattle business are more likely to participate positively in understanding the goals of each dairy cattle business.

dairy farming business

tabel 5. R/C and B/C Dairy Cattle Business in Senduro District

		Keterangan
R/C ratio	1,74	R/C > 1
B/C	1,22	B/C > 1

Based on the results of the financial feasibility calculation of the dairy cattle business in Senduro District, Lumajang Regency with an R/C value of 1.74, it means that every cost invested of IDR 1,000 will generate income of IDR 1,740, so the higher the ratio, the more profitable the dairy cattle farming business will be. The R/C ratio value put forward by [11] states that if the R/C value > 1, then the dairy cattle business in Senduro District can be said to be feasible to develop. According to [12], a higher ratio indicates a greater profit potential which reflects efficient utilization of production factors.

The results of the B/C ratio value of the dairy cattle business in Senduro District are 1.22. This value indicates that every IDR 1 invested will generate a net profit of IDR 1.22. According to [12], the net B/C ratio is considered feasible if its value is greater than 1, meaning that the company generates sufficient profit to offset the costs incurred.

Based on the analysis of the calculation of the R/C ratio and B/C ratio, it can be described that the dairy cattle farming business in Senduro District is feasible to be developed. According to [4] business actors in the development of dairy cattle businesses need to plan and manage risks such as increasing productivity and improving cost efficiency and also the role of the government can design policies to support the growth of the livestock sector through feed subsidies, training and development programs for farmers and providing low loans to business actors.

Factors Affecting the Performance of Livestock Businesses in Senduro District, Lumajang Regency

Table 6. Test F Result

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	100156.671	10	10015.667	246.140	.000 ^b
	Residual	3295.968	81	40.691		
	Total	103452.639	91			

The results of data processing show the value of F (Value) = 246.140 with the value of F table = 1.94 so that F count > F table or Sig. value < 0.05, then the hypothesis is accepted, meaning that the independent variable (X) simultaneously has a significant effect on the dependent variable (Y) that simultaneously there is a significant influence between the predictor variable and the performance of dairy cattle

farming businesses in Senduro District. This is in accordance with the research of [13]; [14]; [15] and [16] that independent variables affect the performance of dairy cattle businesses.

Table 7. The value of the t-test correlation coefficient

	Model	Unstandardized Coefficients	t	Sig.
		B		
1	(Constant)	4.868	.946	.347
	X1 (Number of lactating dairy cattle)	9.379	18.443	.000
	X2 (Amount of green fodder per day)	-.012	-1.509	.135
	X3(Amount of concentrate feed per day)	.269	10.299	.000
	X4 (Age of farmer)	.071	.794	.430
	X5 (Education level)	.342	1.107	.272
	X6 (Livestock farming experience)	-.051	-.553	.581
	X7 (Number of household members)	-1.568	-2.163	.034
	X8 (Number of workers)	2.574	1.110	.270
	X9 (Training attended)	.142	.112	.911
	X10 (Extension attended)	1.009	1.144	.256

Based on the results of the t-test, it shows that partially the predictor variables that have a very significant effect on the performance variable of dairy cattle farming (Y) are the number of lactating cows (X1), the amount of concentrate feed (X3) and the number of family members (X7) because the calculated t value is $> t$ table and the Sig. value < 0.05 .

Number of lactating dairy cattle (X1).

The variable number of lactating cows is very significant to the performance of dairy farming businesses in Senduro District because the significance value of the variable number of lactating cows ($0.000 < 0.05$) then H1 is accepted, meaning that there is a real influence between the number of lactating cows on the performance of dairy farming businesses in Senduro District. This is in line with research from [13] that the number of lactating cows greatly influences the performance of dairy farming businesses, also in line with research conducted by [17] that milk production has a significant effect on the number of lactating cows, meaning that with the increase in lactating cows in Senduro District, it will increase the production of dairy cow milk so that it will also affect the performance of dairy farming businesses in Senduro District. Based on the coefficient value of the variable number of lactating cows, it has a positive value of 9.379. This value shows that if the number of lactating cows increases by one unit, it will increase the performance of dairy farming businesses by 9.379 higher by assuming other variables are constant. It is suspected that by adding lactating cows, it will increase the productivity of dairy cows' milk and increase the income of farmers so that the performance of dairy cattle farming businesses in Senduro District will also increase. This statement is in accordance with the hypothesis of previous research which states that increasing the number of lactating cows will increase the performance of dairy cattle farming businesses in accordance with the hypothesis conducted by [16]; [18]; [13].

Amount of concentrate feed per day (X3).

The variable of the amount of concentrate is statistically significant on the performance of the livestock business because the significance value of the concentrate variable ($0.000 < 0.05$) so that H3 is accepted, meaning that there is a real influence between the variable of the amount of concentrate on the performance of dairy cattle farmers in Senduro District. This is in line with research from [19]; [20]; [17] that the provision of concentrate feed significantly affects milk production so that the concentrate feed given by dairy farmers in Senduro District in terms of quantity and quality has met the needs required by dairy cattle and it is proven that the addition of concentrate feed has an effect on the production of dairy cow milk which will then affect the performance of the dairy cattle business in Senduro District.

Based on the coefficient value, the variable of the amount of concentrate feed has a positive value of 0.269. This value indicates that if the provision of concentrate feed increases by one unit, it will increase the performance of livestock businesses in Senduro District by 0.269 times higher by assuming other factors are constant. This is thought to be because the quality of dairy cattle concentrate feed in Senduro District has met the standards in the SNI for dairy cattle feed and in terms of quantity, it has met the needs of lactating dairy cattle so that when there is an addition of concentrate feed, it will affect the performance of dairy cattle farming businesses in Senduro District. Although the production costs for concentrate feed are still quite high at around 60%, efforts are needed to reduce feed costs by implementing appropriate technology to make alternative feed that is easily affordable for farmers. According to [21], the application of animal feed processing technology significantly affects the sustainability of livestock businesses through the processing of concentrate feed and fermented feed from agricultural and plantation waste materials can improve nutritional quality and can save costs so that feed use is more efficient and operational costs in livestock businesses can be reduced, especially on a small to medium scale that is highly dependent on cost efficiency to remain competitive.

Number of household members (X7).

The variable number of members has a statistically significant effect on the performance of dairy farming businesses in Senduro District because the significance value of the education variable (0.034 < 0.05) so that H7 is accepted, meaning that there is a real influence between the number of family members and the performance of dairy farming in Senduro District. Based on the coefficient value, the family member variable has a negative value of 1.568. This value indicates that if there is an additional 1 family member, it will reduce performance by 1.568 times lower with the assumption that other variables are constant. It is suspected that an increase in the number of family members will increase family responsibilities so that the income of farmers also decreases and results in a decrease in the performance of dairy farming businesses in Senduro District. The same opinion was expressed by [22] that the increasing number of family responsibilities means that the number of family needs that must be met is relatively greater, so that it tends to encourage more work to meet the economic needs of their families, in line with the opinion of [23] that a large number of family members will be a burden for the household to meet daily needs. The number of family members greatly determines the size of the needs in the family. The more family members indicate the greater the number of goods that must be met in the family. Family members also play an active role in raising dairy cattle so that family members are also involved as labor. The use of family labor is due to the small number of cattle owned so that farmers are able to handle dairy cattle without hiring labor from outside the family [24]. Efforts that need to be made to overcome this are the need for a family planning program for farmers by arranging better plans through the KB program. The KB program functions as a preventive measure to overcome the high population growth rate [25]. An active role is needed from the government and society to make the KB program a success.

Conclusion

The results of the study showed that dairy farmers in Senduro District were mostly elementary school educated with productive farmer age (<45 years) and livestock farming experience of more than 5 years and the average farmer has ± 3 lactating dairy cows per farmer on a small scale, the results of the calculation analysis of the R/C ratio and B/C ratio can be described that the dairy farming business in Senduro District is feasible to be developed and the results of the performance analysis of the dairy farming business in Senduro District, Lumajang Regency are partially influenced by the number of lactating dairy cows (X1), the amount of concentrate feed (X3) and the number of family members (X7).

The success of the dairy farming business is greatly influenced by the management of production inputs, especially in terms of the number of productive cows and the efficiency of feeding. This study is expected to be a reference in the development of dairy farming businesses and improving the welfare of farmers in the highlands

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