

1 **Original Research Article**
2 **Profits Analysis of the Sheep Breeding**
3 **Business in Bulu Cina Village, Indonesia**
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8 **ABSTRACT**

Aims: Analyze the profits of sheep farmers in Bulu Cina Village, Deli Serdang Regency, Indonesia.

Study design: Descriptive quantitative

Place and Duration of Study: From September to October 2023, Bulu Cina Village will be situated in Deli Serdang Regency, Indonesia.

Methodology: This type of research is descriptive, namely, researchers who describe the variable conditions obtained by sheep farming business actors. The material that will be used in this research is related to the overall data and field studies obtained, namely in the form of production costs and income from sheep farming businesses so that the income of sheep farming business breeders can be calculated and obtained.

Results: Sheep farming in the research area is profitable for sheep farmers as it yields an average net income of IDR 29.519.791 per period. The breeders of beef sheep receive an average net income of IDR 2.459.983 per month. This type of activity is a feasible business option with an RCR value of 4,27.

Conclusion: To increase income from sheep farming businesses, it is essential to use production factors efficiently.

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11 *Keywords: breeders, business feasibility, sheep, production, profits.*
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14 **1. INTRODUCTION**

15 Success is the ultimate goal of every beef and sheep farmer in their livestock business[1].
16 The profit obtained by efficiently utilizing production factors is one of the parameters that can
17 be used to measure the success of a business[2]. Utilizing the right production factors in
18 every business is an absolute requirement for making a profit[3]. Effective management is
19 crucial in achieving profit and efficiency in sheep-fattening businesses. Breeding, feeding,
20 and livestock management are critical elements[4].

21 Bulu Cina Village is an autonomous region with abundant resources that can be
22 harnessed to achieve the primary objective of economic development, which is to increase
23 the variety and number of job opportunities available to the local community, thereby
24 promoting a more equitable distribution of wealth[5]. To achieve this goal, the government
25 needs to focus on developing the potential economic sectors to become leading industries in
26 the region.

27 The sheep farmers in Bulu Cina Village have done a commendable job in managing
28 their sheep. However, a more intensive handling of the process is required to increase
29 production. Unfortunately, more intensive handling often comes with its own set of
30 challenges. One such challenge in sheep production is the level of risk involved in the
31 process[6]. *Risk* is an uncertain situation that can have a detrimental impact on an individual
32 or a company.

33 Profit analysis is a crucial tool to evaluate the success or failure of a business
34 activity[7]. It helps to identify the main components of income and assess whether they can
35 be improved. A business activity is successful if the income generated is sufficient to cover

36 all production expenses. Business analysis provides a detailed report of financial
37 transactions over a specific period. The purpose of this study is to analyze the profits earned
38 by beef and sheep breeders in Bulu Cina Village.

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41 2. MATERIAL AND METHODS

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43 This study utilized a descriptive quantitative approach to describe the various conditions
44 experienced by sheep farming business owners, particularly regarding the data obtained
45 from both field studies and overall data. The study is descriptive, meaning that the
46 researchers aim to describe the conditions experienced by sheep farming business owners.
47 The research will be conducted in Bulu Cina Village, Deli Serdang Regency, and will focus
48 on production costs and revenues from sheep farming businesses. By analyzing these
49 factors, the researchers aim to calculate the income earned by sheep farming business
50 owners.

51 The study population consisted of seven beef sheep breeders in Bulu Cina Village.
52 The sampling method used was census or overall sampling, which involves investigating or
53 interviewing all individuals in the population, also known as the complete enumeration
54 method [8].

55 During the research stage, initial observations are carried out to determine the
56 general conditions of the research location. This is achieved by conducting interviews and
57 identifying any problem phenomena. Following observation and socialization, the problem is
58 assessed and a solution is proposed. The implementation stages are then prioritized and
59 research is conducted by using questionnaires to gather data through interviews. Finally, the
60 gathered data is analyzed, and a final research report is written.

61 The survey activities will involve the use of specific data collection techniques, are:

62 1. Observation

63 Observation is a data collection method that can be used to measure not only
64 respondents' attitudes (through interviews and questionnaires), but also to record
65 various phenomena that occur such as situations and conditions. This technique is
66 commonly used when survey activities are intended to study human behavior, work
67 processes, and natural phenomena. It is carried out on respondents to gather
68 accurate and reliable information.

69 2. Interviews

70 Interviews are a data collection method where researchers ask direct, face-to-face
71 questions to sources or data sources.

72 3. Documentation

73 Documentation provides accurate evidence from recorded sources to depict events
74 that occurred at the researcher's location.

75 4. Questionnaires

76 Questionnaires are distributed to farmers to collect data on their income during one
77 planting season.

78 Data analysis was conducted to determine the income of a beef and sheep farming
79 business in Bulu Cina. The general formula used to determine the income of a sheep
80 business:

81 1. To perform a revenue analysis, it is necessary to use a formula:

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$$TR = P \times Q \dots\dots\dots [9]$$

83 **Description,**

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85 TR = Total Revenue (IDR)

86 P = Price (IDR)

87 Q = Quantity (IDR)

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2. Analyze costs with formulas:

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$TC = TFC + TVC$ [4]

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Description,

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TC = Total Cost (IDR)

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TFC = Total Fixed Cost (IDR)

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TVC = Total Variable Cost (IDR)

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3. Analisis pendapatan dengan rumus

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$Pd = TR - TC$ [10]

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Description,

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Pd = Pendapata (IDR)

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TR = Total Revenue (IDR)

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TC = Total Cost (IDR)

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3. RESULTS AND DISCUSSION

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Respondent Characteristics

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The data presents the characteristics of breeders in the beef sheep fattening industry in Bandar Senembah Village, Binjai City. These characteristics include the breeder's age, formal education, number of children, and experience in the beef cattle farming industry. You can find detailed information about the respondents' characteristics in Table 1.

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Table 1. Characteristics of Respondents

No	Description	Unit	Range		Average
			Lowest	Highest	
1.	Age	Year	15	42	28
2.	Education	Year	12	18	16
3.	Number of children	Person	0	6	3
4.	Experience	Year	3	12	7

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Cost Analysis

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Farmers who manage a sheep business incur two types of costs: fixed costs and variable costs. Fixed costs remain constant per output level or are still incurred even when no production occurs, as they are not exhausted within a production period. Examples of fixed costs in a beef sheep fattening business include depreciation costs for pens and equipment. To calculate depreciation costs, one can subtract the item's final value from its initial value and then divide the difference by the length of use. Depreciation costs are calculated by dividing an investment's cost by the years it is expected to be valid [4].

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Variable costs vary depending on the production level or the goods produced. These costs are typically used up during the production process. In the case of a beef sheep fattening business, variable costs could include purchasing slaughtered sheep at the beginning of the year, additional feed expenses, medicines and vitamins, and wages for labor. For more detailed information on the average costs associated with this business, please refer to Table 2.

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Table 2. Average Production Costs in Sheep Businesses

No	Total Production cost (Rp)
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	Fix Cost (IDR)	Variable Cost (IDR)	Amount (IDR)
1	677.300	8.073.600	8.750.900
2	580.500	7.980.100	8.560.600
3	877.000	7.229.800	8.106.800
4	845.600	8.325.000	9.170.600
5	685.000	8.851.500	9.536.500
6	405.500	8.713.200	9.118.700
7	659.700	9.165.500	9.825.200
Amount (IDR)	4.730.600	58.338.700	63.069.300
Average (IDR)	675.800	8.334.100	9.009.900

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Table 2 presents the fixed and variable costs involved in sheep farming at the research location. The total fixed cost amounts to IDR 675.800, which includes cage depreciation and other depreciation costs. On the other hand, the variable costs comprise production facility costs and labor costs. The production facility costs for the sheep farming business add up to Rp. 8.334.100, which makes up 26% of the total cost. This category includes feed, vitamins, medicine, and livestock costs at the beginning of the year. The remaining 74% of the total cost is allocated to labor costs, the main expense in beef sheep fattening in the study area.

According to the research findings, variable costs account for 92.50% of the total costs, while fixed costs only make up 7.50%. Fixed costs do not impact the production output but affect the profit level that sheep farmers can achieve. On the other hand, variable costs directly affect the amount of production that can be produced [10], [11].

Sheep Business Revenue and Income

The income of a sheep business depends on the size of production and the price at harvest. In Bulu Cina Village, the selling price of sheep ranges from IDR 1.056.685 to IDR 1.598.750 with an average of IDR 1.244.948. On average, a sheep farming business produces 18 heads per period, six months. You can see the average revenue and income for sheep farming businesses in Table 3.

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Table 3. Sheep Business Revenue and Income Per Period

No	Description	Business Value (IDR)
1	Fix Cost	675.800
2	Variable Cost	8.334.100
3	Total Cost (1+2)	9.009.900
4	Total Revenue (P*Q)	38.529.691
5	Profit (4 - 3)	29.519.791

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According to Table 3, businesses in this research area generated a production value of IDR. 38,529,691 per period by selling live and fresh lambs. The total cost, which includes fixed and variable costs, was IDR. 9,009,900. Based on the data in Table 3, sheep breeders earned a net income of IDR. 29,519,791 per period is the difference between total revenue and total costs. To determine whether a sheep business is profitable, we can use the

157 assessment criteria considering the price level multiplied by the amount of sheep production,
 158 which should exceed all costs. By meeting this criterion, we can conclude that investing in
 159 developing a sheep business is wise. In order to maximize profits, it is essential to focus on
 160 increasing technical efficiency.
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162 **Sheep Farmer Income Per Month**

163 **Table 4. Distribution of Income Levels for Sheep Farming Businesses in the Research**
 164 **Area**

No.	Income (Rp/Tahun)			Farmer's Income (IDR/ Month)
	Revenue (IDR)	Production cost (IDR)	Profit (IDR/Period)	
1	40.629.310	8.750.900	31.878.410	2.656.534
2	39.972.580	8.560.600	31.411.980	2.617.665
3	32.783.000	8.106.800	24.676.200	2.056.350
4	28.752.590	9.170.600	19.581.990	1.631.833
5	39.005.300	9.536.500	29.468.800	2.455.733
6	36.482.560	9.118.700	27.363.860	2.280.322
7	52.082.500	9.825.200	42.257.300	3.521.442
Total (IDR)	269.707.840	63.069.300	206.638.540	17.219.878
Average (IDR)	38.529.691	9.009.900	29.519.791	2.459.983

165 Table 4 presents the monthly net income of sheep farmers in the research area. The table
 166 reveals that the net income of sheep farming businesses ranges from IDR 1.631.833 per
 167 month to IDR 3.521.442 per month. On average, beef sheep breeders in the research area
 168 receive a monthly net income of IDR 2.459.983. The difference in net income is due to
 169 variations in production and breeder use of superior seeds. The amount of production affects
 170 the costs and income of farmers.
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172 According to the findings from field surveys, the size of a sheep farming business
 173 significantly affects its production and income. As the scale of the business increases, so
 174 does the production and income. Conversely, smaller-scale sheep businesses tend to
 175 generate less production. Additionally, the expertise of the breeders in the field of research
 176 also plays a role in business production. The more experienced the breeders, the more
 177 opportunities they have to increase production and income. This was confirmed when the
 178 sample group with the highest experience, who had been involved in sheep farming for 12
 179 years and had a large business scale, produced the highest production and income. They
 180 earned IDR. 3.521.442 per month.
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183 **Economic Analysis and Business Feasibility**

184 After conducting a production cost analysis and income analysis, we carried out a feasibility
 185 analysis of sheep farming in Bulu Cina Village, as shown in Table 5.

186 **Table 5. Feasibility Analysis of Sheep Farming Business**

No	Description	Unit	Business Value
1	Total Cost	IDR	9.009.900

2	Total Revenue	IDR	38.529.691
3	Profit (2 - 1)	IDR	29.519.791
4	Revenue Cost Ratio (2/1)	-	4,27

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From Table 5, it can be seen that the R/C ratio value for the sheep farming business in Bulu Cina Village is 4,27. This value is obtained by comparing the total receipts of IDR 38.529.691 with the total costs of IDR 9.009.900. This indicates that the sheep farming business is economically feasible, as the R/C ratio value is greater than 1, with an average value of 4,27.

194 4. CONCLUSION

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After conducting thorough research, it can be concluded that the sheep fattening business in the research area is profitable for sheep farmers, with an average net income of IDR 2,459,983 per month and a total profit of IDR 29,519,791 per period. Thus, this type of business is worth pursuing and developing as it has a high RCR value of 4.27. To increase production and income from sheep farming businesses, it is essential to utilize production factors efficiently.

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209 COMPETING INTERESTS

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Authors have declared that no competing interests exist.

214 AUTHORS' CONTRIBUTIONS

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All authors collaborated in carrying out this work. Julia Marisa was responsible for designing the study, performing the statistical analysis, writing the protocol, and drafting the manuscript. Sukma Aditya Sitepu managed the study analyses, while Aditiya Amanda Rianto managed the literature searches. Anwar Suhut accommodated facilities for conducting research. The final manuscript was reviewed and approved by all authors.

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