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Research Article

Profit Analysis of Beef Cattle Business on Sinar Pagi Livestock Group, in Limapuluh Kota District, West Sumatra

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ABSTRACT

This study aims to determine the income and analyze the profit level of the beef cattle business owned by the Sinar Pagi livestock group in Limapuluh Kota Regency, Sumatera Barat Province. This research contributes to the wider debate on improving rural livelihoods and achieving sustainable agricultural development, and is essential for understanding the profitability of smallholder livestock enterprises. The results of this research will provide insights into the financial sustainability of their operations and will inform strategies for the optimisation of their business performance. The research was carried out using a case study method with 16 key informants, also members of the Sinar Pagi livestock group. Data were analyzed with descriptive quantitative methods. The study results show that the income earned by this livestock group in one year of research is IDR 6,471,775, with a profit rate of 1.08/year. It can be concluded that the Sinar Pagi livestock group only gets a profit of 8%, and this profit has not been able to meet the needs of the farmer's life.

Keywords: beef cattle, group, profit analysis, West Sumatra

INTRODUCTION

The agricultural sector remains the second-largest contributor to Indonesia's Gross Domestic Product (GDP). In 2021, this sector accounted for 13.38% of the national GDP, based on prevailing prices (Central Statistics Agency, 2021). This significant contribution reflects the sector's vital role in providing employment and income for many Indonesians. However, many agricultural enterprises, including livestock farming, are still managed traditionally using family labor. As a result, such businesses are often categorized as household farming or ranching operations (Sari, Haryono, & Rosanti, 2014).

Community welfare is a critical goal for the Indonesian government, and agricultural income plays a pivotal role in achieving it. According to Sari *et al*. (2014), welfare can be measured by the income generated from farming activities, which aligns with Rachmat's (2013) statement that farm income serves as a reliable indicator of farmers' welfare. Nevertheless, livestock farming conducted by smallholder farmers often falls short of meeting the household's financial needs. Consequently, livestock farming is frequently viewed as a secondary rather than a primary source of livelihood for these communities.

In Lima Puluh Kota Regency, the beef cattle sector represents a significant component of the local agricultural economy. The region has long been recognized as a center for beef cattle

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development in West Sumatra Province due to its favorable conditions for livestock farming. Beef cattle farming focuses on meat production, catering to a growing demand for beef that continues to outpace supply (Rastosari, 2019). Recognizing this potential, the Sinar Pagi livestock group in Lareh Sago Halaban District has pooled their resources and expertise to establish a collaborative beef cattle farming operation.

The primary objective of this business is profit generation. Profitability is determined by analyzing costs, revenues, and net income, which are critical metrics for evaluating the business's performance. Furthermore, the ability of farmers to operate efficiently often depends on their experience. Ardika and Budhiasa (2017) highlight that greater farming experience correlates with better management skills, which can enhance profitability.

Preliminary observations of the Sinar Pagi livestock group, which comprises 16 members with an average of ten years of farming experience, suggest a high level of expertise. However, despite their experience, the group lacks precise knowledge of their business's profitability. This uncertainty has prompted researchers to investigate the income and profit levels of the Sinar Pagi livestock group. The findings will provide insights into the financial sustainability of their operations and inform strategies for optimizing their business performance.

This research is essential for understanding the profitability of smallholder livestock enterprises and contributes to broader discussions on improving rural livelihoods and achieving sustainable agricultural development.

MATERIAL AND METHODS

This research was conducted in the Sinar Pagi Livestock Group, Lareh Sago Halaban District, Limapuluh Kota Regency. The research method used was the case study method, with the number of research respondents as many as 16 people. The data was analyzed descriptively quantitatively using the following livestock business income formula:

$$\pi = Y.\ Py - \sum X\ i.\ Pi$$

Description:

π = Revenue beef cattle (Rp)
Y = PBeef cattle energy
Py = Price beef cattle (Rp/head)
$\sum Xi$ = Number of i-th factor of production (i = 1,2,3,... n)
Pi = Price of the i-th factor of production (Rp)

To find out the benefits of farming, will be seen using the formula *Return Cost* (R/C) ratio, which is a comparison between livestock business revenue and production costs incurred. The formula used is as follows:

The R/C criteria of this ratio are:

$$R/C = \frac{\text{Total Revenue}}{\text{Total Cost}}$$

1. If the R/C > 1, then the business is profitable
2. If R/C = 1, then the business being run is at breakeven
3. If the R/C is <1, then the business being run is at a loss

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RESULTS AND DISCUSSION

Characteristics of Farmers in the Sinar Pagi Livestock Group

Table 1. Characteristics of farmers in the Sinar Pagi group

No.	Description	Number of respondents (People)	Percentage (%)
1.	Age (years)		
	- < 30	1	6.25
	- 30 – 40	8	50.00
	- 41 – 50	6	37.50
	- > 50	1	6.25
2.	Education level		
	- Elementary school	3	18.75
	- Junior high school	2	12.50
	- Senior high school	7	43.75
	- University	4	25.00
3.	Breeding experience (years)		
	- 1 - 5	2	12.50
	- 5 - 10	4	25.00
	- > 10	10	62.50
4.	Main job		
	- Farmer	12	75.00
	- Merchant	2	12.50
	- Self-employed	2	12.50

Age

The age distribution of respondents reveals that the majority fall within the productive age range of 30–40 years, accounting for 50.00%. This suggests that most individuals actively participating in the activities central to this research are in a prime phase of work productivity and decision-making capacity (Zélity, 2023). Following this, the 41–50 age group constitutes 37.50%, also categorized as productive but bringing greater maturity and experience to the activities under study. The involvement of different ages in a company will have a positive effect on the productivity of a business (Meulenaere *et al.*, 2016).

In contrast, only 6.25% of respondents were aged below 30 or above 50. The limited representation of these groups may stem from factors such as lower interest or engagement among younger individuals and reduced participation from older individuals, potentially due to physical constraints or a shift in focus to other sectors. These findings underscore the importance of designing engagement strategies tailored to the 30–40 age demographic, who demonstrate both dynamism and adaptability, qualities essential for driving innovation and growth in the research context. Their active involvement may also reflect an interest in opportunities for professional advancement and entrepreneurial endeavors.

Education level

The majority of farmers in this group have a high school education, accounting for 43.2% of the total farmers. While education may not directly affect farmers' perseverance in farming (Ibrahim *et al.*, 2020), it significantly impacts their ability to effectively manage the livestock

business and adopt innovative technologies - key factors in driving the livestock industry forward (Indrayani *et al*., 2018). In addition, education plays an important role in the decision-making process. Therefore, encouraging higher educational attainment among farmers can improve their capacity to achieve profitability in their livestock businesses (Edwin *et al*., 2021). Further studies show that educated farmers are more likely to implement optimal livestock management practices, resulting in better animal health and increased productivity (Ruzzante *et al*., 2021) In the context of an increasingly competitive agricultural sector, individuals with advanced knowledge are better equipped to utilise cutting-edge technologies and methodologies, thereby improving efficiency and product quality (Rizzo *et al.,* 2024; Balehegn *et al*., 2020).

Breeding experience

Experience is needed in any job. Because with experience, problems occur in a business, and as long as these problems have been experienced before, it will be easier for someone to find a way out of them. Similarly, in livestock, the experience of a farmer will significantly affect livestock skills. With livestock experience, farmers will be more careful in responding to all shortcomings that occurred in the past (Nurdayati *et al*., 2020). The average farming experience farmers have in the Sinar Pagi livestock group is more than ten years. This is quite long so that farmers of the Sinar Pagi livestock group can be categorized as having good breeding skills.

Main job

The main job respondents is as a plant farmer while raising livestock is only a side job. This is because their most significant income comes from agriculture. This can be seen from the livestock techniques they carry out, which are traditional. In line with this statement, Sahala (2015) said that the livestock business carried out traditionally includes side companies because most farmers choose farmers as their main job.

Business Revenue for Beef Cattle Sinar Pagi Cattle Group

Sinar Pagi's livestock companies generate revenue from several sources, including the sale of breeding cows, calves, value-added livestock products, and manure used as fertilizer. These income sources are divided into cash income and non-cash income. Cash income comes from direct sales of heifers and calves, while non-cash income encompasses value-added activities and the economic benefits of manure usage, even when not sold.

Table 2. Reception of Sinar Pagi livestock group farmers

No.	Acceptance	Amount (IDR)	Percentage(%)
1.	Cow sales	6,500,000	7.90
2.	Calves sales	48,150,000	58.51
3.	Livestock value added	24,000,000	29.16
4.	Feces	3,643,200	4.43
Average		27,643,200	33.59
Total receipts		82,293,200	100.00

In the table above, it can be seen that the revenue of beef cattle from the Sinar pagi farmer-cattle group is IDR 82,293,200,-. The sale of livestock is still carried out through the

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intermediators, so the selling price of livestock tends to be unstable even though the selling age of livestock is classified as the same. This revenue calculation is calculated during one accounting year. The highest business revenue came from the sale of male offspring, followed by the increase in livestock value, which amounted to 29.16% of the total revenue.

Production Cost of Beef Cattle Business Sinar Pagi Cattle Group

Total the costs incurred in the production process of farmers of the Sinar Pagi Farmer-Livestock group amounted to IDR 75,730,925,-/ breeder/year. These costs are obtained through the sum between the average variable costs and the average fixed costs. Variable costs incurred amounted to IDR 62,224,125, - or 82.16% of the production process where the largest cost needed in variable costs was labor costs amounting to 59.12% of total variable costs as seen in Table 3.

Table 3. Production costs of beef cattle business of Sinar Pagi group

No.	Types of Fees	Amount (IDR)	Percentage
1.	Variable costs		
	- Feed cost	15,423,250	20.37
	- Labor costs	44,771,875	59.12
	- Cost of medicines	604,000	0.80
	- IB fees	1,425,000	1.88
Total variable costs		62,224,125	82.16
2.	Fixed costs		
	- Shrinkage of seedlings	5,135,000	6.78
	- Cage shrinkage	5,895,000	7.78
	- Equipment depreciation	2,476,800	3.27
Total fixed costs		13,506,800	17.84
Total cost of production		75,730,925	100.00

Variable costs constitute the majority of the total production costs, amounting to IDR 62,224,125, or 82.16% of the overall costs. Among these, labor costs dominate, accounting for 59.12% (IDR 44,771,875) of the total expenses. Feed costs represent the second-largest proportion of variable costs, contributing 20.37% (IDR 15,423,250). Other variable costs, including the cost of medicines (0.80%) and artificial insemination (IB) fees (1.88%), are relatively minor components, indicating that these factors have a smaller financial impact on the overall cost structure. The distribution of costs highlights the importance of managing variable expenses to enhance profitability. Labor costs, which primarily encompass wages, benefits, and training, play a critical role in maintaining operational efficiency and productivity.

In livestock farming, fixed costs, such as depreciation of facilities and equipment, play a significant role in determining overall production expenses (Paul *et al*, 2024). Depreciation reflects the gradual reduction in value of assets like cages and equipment over time, representing a substantial portion of fixed costs. For instance, cage depreciation accounting for 7.78% of total production costs underscores the importance of infrastructure in livestock operations.

Including regular maintenance and strategic investment in durable infrastructure, can mitigate depreciation expenses and enhance overall farm profitability. The research suggests

that farmers who proactively manage their fixed assets experience lower depreciation costs, thereby improving their financial performance.

Additionally, equipment depreciation, contributing 3.27% to total production costs, highlights the need for efficient utilization and timely replacement of machinery to maintain operational efficiency. The study found that farms investing in advanced machinery experienced a 15% reduction in equipment-related depreciation expenses over five years (Verma, 2006).

Understanding the impact of fixed costs, particularly depreciation, is crucial for livestock farmers aiming to optimize production costs. Implementing strategies such as regular maintenance, investing in high-quality infrastructure, and efficient asset management can significantly reduce the financial burden of depreciation, leading to enhanced profitability and sustainability in livestock farming operations.

Business Income of Beef Cattle of Sinar Pagi Livestock Group

The income balance above shows that the beef cattle business run by the Sinar Pagi cattle group in 1 year is IDR 6,471,775,-. This amount is obtained by subtracting the revenue obtained from the costs incurred during the production process in 1 accounting year. The livestock group did not experience a deficit, but the income obtained was considered not to be expected to meet the daily needs of group members.

Table 4. Business income balance of beef cattle Sinar Pagi farmer group

Acceptance		Cost	
Cash receipt (IDR)		Fixed costs (IDR)	
Parent sales	6,500,000	Shrinkage of seedlings	5,135,000
Calve sales	48,150,000		
Non-cash receipt		Cage shrinkage	5,985,000
Livestock value added	24,000,000	Equipment depreciation	2,476,800
Dirt value	3,643,200	Variable costs	
		Feed cost	15,423,750
		Labor costs	44,771,875
		Cost of medicines	604,000
		IB fees	1,425,000
		Sum	75,821,425
		Income	6,471,775
Total receipts	82,293,200		82,293,200

Profit Rate of Beef Cattle Business Sinar Pagi Cattle Group

One indicator of the success of a livestock business is profit (Purnomo *et al*., 2021). Using the formula *Revenue Cost Ratio,* we can see the profit obtained by the Sinar Pagi livestock group business, which is 1.08. Through this value, it can be said that the Sinar Pagi livestock group gains profits because the R/C value is considerable from 1. It's just that the profit obtained is minimal compared to the yield obtained in Indrayani's research (2018) regarding factors that affect beef cattle business income, with the calculation of the profit level of farmers in the Sitiung area being 1.61. It is hoped that members of this livestock group can improve their business management to maximize the profits to be obtained. The level of profit obtained will be closely related to the selling value and costs incurred by the breeder (Happyana, 2017).

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CONCLUSION

The revenue received by the livestock group from its beef cattle business in 1 year is as much as IDR 82,293,200,-, where this revenue is obtained from the sale of livestock, livestock value-added, and manure that is not sold but used as fertilizer for crops owned by farmers. Cost production issued from this business is around IDR 75,821,425,-. Through the difference in revenue and costs, the annual income from the group's business is IDR 6,471.77,- with a profit rate of 1.08, which means that the group run business gets a profit but not much.

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