

## FEASIBILITY ANALYSIS OF PIG FARMING BUSINESS AT POKDAKAN DUKUH GANGGA SEDANA IN BUNUTIN VILLAGE, BANGLI DISTRICT

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### Abstract

This study aimed to analyze the feasibility of pig farming business at Pokdakan Dukuh Gangga Sedana in Bunutin Village, Bangli District. The analysis was conducted using production cost, revenue, profit, Revenue Cost Ratio (R/C Ratio), Break Even Point (BEP), and Payback Period approaches. The farming system implemented an integrated breeding and fattening model with a production capacity of approximately 100 pigs per production cycle over five months. The results showed that the total revenue reached Rp 400,000,000 with a total production cost of Rp314,334,667, resulting in a profit of Rp85,665,333 per production period. The R/C Ratio value of 1.27 indicated that the business was feasible and profitable to be developed. The BEP price value of Rp28,576/kg was lower than the actual selling price of Rp36,000/kg, indicating a sufficient safety margin against market price fluctuations. In addition, the investment payback period was estimated at 3 years and 8 months. The cost structure showed that feed was the largest production cost component; therefore, feed efficiency became the main factor in increasing business profitability. Overall, the pig farming business at Pokdakan Dukuh Gangga Sedana has good prospects for sustainable development with proper business management and optimal risk control.

Keywords : pig farming business, business feasibility, R/C Ratio, Break Even Point, feed efficiency

### Introduction

Pig farming is one of the subsectors of animal husbandry that plays an important role in meeting the demand for animal protein while also increasing community income, especially in areas with high levels of pork consumption. Pigs have several advantages, such as efficiency in converting feed into meat, rapid growth rates, and the ability to adapt to various environmental conditions (Costales, 2006). These advantages make pig farming highly potential for development on both small and large scales. However, in its implementation, farmers still face various challenges, such as unstable feed prices, disease risks, as well as limited capital and managerial capabilities (Badan Pusat Statistik, 2022).

From an agribusiness perspective, pig farming business analysis is essential to assess the

efficiency and feasibility of the farming operation. This analysis includes the calculation of production costs, revenues, and income, accompanied by the use of feasibility indicators such as the R/C ratio (Soekartawi, 2006). Through this analysis, farmers can evaluate the performance of their business more objectively and determine more effective management strategies. In addition, business analysis also helps identify factors that influence business success, such as production scale, technology utilization, and ease of access to markets and production facilities (Downey and Erickson, 1992).

Furthermore, studies on pig farming business analysis have a strategic role in supporting sustainable agricultural development and improving farmers' welfare. The information generated from this analysis can serve as a

reference for the government and related stakeholders in formulating policies, such as providing feed subsidies, enhancing farmers' capacity through training programs, and strengthening farmer institutions (Ministry of Agriculture of the Republic of Indonesia, 2021). Therefore, this research not only contributes academically to the field of agribusiness but also provides practical benefits in improving the competitiveness and sustainability of pig farming businesses in the future.

In the local context, pig farming businesses in Bangli Regency are predominantly operated by small- to medium-scale community farmers and are spread across all districts. Data indicate that the pig population in Bangli exceeds 10,000 heads and even experiences a surplus compared to community demand, especially ahead of religious holidays. This condition shows that pig farming has considerable economic potential; however, it also faces market dynamics such as overproduction, which may suppress livestock selling prices. In addition, the high cost of feed is one of the main factors affecting farmers' profits, thus requiring more efficient and well-planned farm management. Therefore, the study of pig farming business analysis in Bangli is important not only for increasing farmers' income but also as a basis for policy formulation in the development of a sustainable livestock sector.

## Materials and Methods

This research was conducted at Pokdakan Dukuh Gangga Sedana in Bunutin Village, Bangli District, Bangli Regency, which sells pigs. The data analysis method used was :

### a. Production Cost

Production costs consist of fixed costs and variable costs.

$$TBP = TBT + TBTT$$

Explanation:

TBP = Total production cost

TBT = Total fixed cost

TBTT = Total variable cost

### b. Revenue

Farm revenue can be calculated using the following formula:

$$TR = P_y \times Y$$

TR = Total farm revenue

$P_y$  = Price of Y

Y = Production obtained from the farming business (Soekartawi, 2006)

### c. Profit

Mathematically, the formula for calculating profit is:

$$\Pi = TR - TC$$

Explanation:

$\Pi$  = Farm profit

TR = Total revenue

TC = Total cost of farming business (Soekartawi, 2006)

Criteria:

If the profit value is positive, the business is profitable. Conversely, if the profit value is negative, the business incurs a loss.

d. According to Suratiah (2006), the feasibility analysis of a farming business in terms of profitability can be calculated using the following formula:

$$\frac{R}{C} \text{ Rasio } \frac{TR}{TC}$$

Explanation:

TR = Total Revenue

TC = Total Cost / Fixed Cost

Criteria:

R/C Ratio > 1 : The farming business is feasible to operate.

R/C Ratio = 1 : The farming business breaks even.

R/C Ratio < 1 : The farming business is not feasible to operate.

### Results and Discussion

The pig farming business based on the analyzed data shows the characteristics of an integrated production system between breeding and fattening, which is considered one of the efficient business models in increasing livestock productivity. Pokdakan Dukuh Gangga Sedana has 10 breeding sows capable of producing 9–12 piglets per birth. This business has the potential to produce up to 100

market-ready pigs in one production cycle of approximately five months. The average harvest weight of  $\pm 110$  kg per pig indicates that the livestock management system has been directed toward achieving optimal production performance. This integrated system provides advantages because farmers do not depend on external piglet supplies, thereby reducing production costs while maintaining sustainable livestock quality (Sihombing, 2010; Soekartawi, 2006). In general, the analysis of the pig farming business at Pokdakan Dukuh Gangga Sedana can be seen in Table 1 below.

Table 1. Pig Farming Business Costs at Pokdakan Dukuh Gangga Sedana

<b>A. Biaya Investasi</b>						
No.	Description	Unit Price (Rp)	Quantity	Unit	Total (Rp)	Depreciation Cost (Rp)
1	Construction of sow pens	2,000,000	12	Unit	24,000,000	400,000
2	Purchase of breeding sows	5,000,000	10	Head	50,000,000	833,333
3	Purchase of boars	5,000,000	2	Head	10,000,000	166,667
4	Construction of battery pens	700,000	100	Unit	70,000,000	1,166,667
5	Construction of farrowing pens	3,500,000	4	Unit	14,000,000	233,333
6	Construction of weaned piglet pens	3,000,000	4	Unit	12,000,000	200,000
7	Construction of pen roof, warehouse, toilet, and waste disposal system	150,000,000	1	Package	150,000,000	2,500,000
8	Shovels and hoes	200,000	2	Unit	400,000	6,667
9	300 kg digital scale	1,500,000	1	Unit	1,500,000	25,000
10	Buckets	30,000	6	Unit	180,000	3,000
<b>Total Investment Cost</b>					<b>332.080.000</b>	<b>5.534.667</b>
<b>B. Fixed Costs (FC)</b>						
<b>Sow Feed</b>						
1.	Mixed feed + 157	4500	4500	Kg	20.250.000	
2.	Mixed feed + 152	4500	900	Kg	4.050.000	

	<b>Fattening Feed</b>					
1.	Mixed feed + 152	5.000	50000	Kg	250.000.000	
	<b>Additional Supplements</b>					
1.	Medicines and vitamins	2.000.000	1	Package	2.000.000	
<b>Total Fixed Cost</b>					<b>276.300.000</b>	
<b>C. Variable Costs (VC)</b>						
1.	Electricity cost	1.500.000	5	Months	7.500.000	
2.	Labor cost	2.500.000	10	Package	25.000.000	
<b>Total Variable Cost</b>					<b>32.500.000</b>	
<b>E. Total Cost (Depreciation Cost + B + C + D)</b>					<b>314.334.667</b>	

From the cost aspect, the expenditure structure in this business is divided into fixed costs and variable costs. Fixed costs include initial investments such as the construction of pens and the purchase of breeding stock, which have a certain economic lifespan and are calculated through depreciation. This approach indicates that the business analysis has properly considered cost accounting principles, resulting in a more realistic profit estimation. Meanwhile, variable costs such as feed, medicines, and labor become the dominant components in business operations, where feed generally contributes around 60–70% of the total production cost. This is in line with the opinion that feed efficiency is a key factor in determining the success of a pig farming business (Devendra & Fuller, 1979; Soekartawi, 2006).

From the production and income perspective, the total output produced reached approximately 11,000 kg of live weight, which is categorized as a medium-scale business and economically feasible for commercial development. Business income is highly influenced by market selling prices, livestock mortality rates, and feed conversion efficiency. The lower the mortality rate and the better the feed conversion, the greater the profit obtained. However, this business also faces various risks, such as fluctuations in feed prices, disease outbreaks, and unstable market prices. Therefore, good business management is required, particularly in aspects of livestock health and production efficiency, so that the business can operate sustainably and generate optimal profits (Siregar, 2009; Soekartawi, 2006).

F. Revenue				
F.1. Total Fattening Production for 5 Months		= 11.000Kg X Rp. 36.000		
				= 396.000.000
F.2. Assumption of Selling Piglets From 10 breeding sows, it is assumed that there are 20 remaining piglets produced every 5 months after weaning, with a net profit of Rp. 200,000 per piglet after deducting feed and medicine costs.				
				= 20 piglets X Rp. 200.000
				= 4.000.000

Total Revenue (F.1 + F.2)		=396.000.000 + Rp. 4.000.000
		= 400.000.000
G. Profit		
Profit = Revenue – Total Production Cost		= Rp. 400.000.000 - Rp.314.334.667
		= 85.665.333
H. Revenue-Cost Ratio (R/C Ratio)		
R/C Ratio = Revenue ÷ Total Production Cost		= Rp. 400.000.000 : 314.334.667
		= 1,272529067
This means that every Rp. 1 spent generates a return of approximately Rp. 1.27.		
I. Break Even Point (BEP)		
BEP (Rp.) = Total Cost ÷ Total Production		= Rp. 314.334.667: 11000
		= 28.576
This means that with a production volume of 11,000 kg and a total cost of Rp. 314,334,667		
the break-even selling price for pig fattening is Rp. 28,576 per kg.		
J. Payback Period		
Payback Period = Total Investment ÷ Business Profit		= Rp. 332.080.000 : 85.665.333
		= 3,876481
This means that the investment can be recovered within approximately 3 years and 8 months.		

Based on the analyzed data of the pig farming business, financial feasibility indicators such as the R/C ratio (Revenue Cost Ratio) and BEP (Break Even Point) show that this business is profitable and feasible to be developed. The R/C ratio obtained is greater than 1, namely 1.2, which indicates that every unit of cost incurred is able to generate greater revenue. Theoretically, the R/C ratio is a comparison between total revenue and total cost, where an R/C value > 1 indicates a profitable business, R/C = 1 means break-even, and R/C < 1 indicates a loss-making business. Thus, the results of the analysis in this pig farming business demonstrate that the production activities have been efficient in managing inputs into economically valuable outputs, especially supported by a relatively large business scale and an integrated production system (Soekartawi, 2006; Gittinger, 1986). In addition, the results of the Break Even Point (BEP) calculation show the business break-even point both in terms of production units and price. Production BEP describes the

minimum number of livestock or live weight that must be produced so that total revenue equals total cost, while price BEP indicates the minimum selling price per kilogram for the business to avoid losses. In the data presented, the BEP value is below the actual production and price levels, which means the business has a fairly good margin of safety. This implies that even if there is a decline in prices or production, the business still has the potential to remain in a non-loss condition. This is important in livestock farming businesses that are vulnerable to market price fluctuations and production risks such as disease outbreaks or livestock mortality (Kadariah, 2001; Soekartawi, 2006).

Overall, the combination of an R/C ratio value greater than 1 and a BEP position lower than the actual production realization indicates that this pig farming business has a good level of efficiency and economic resilience. However, to maintain these conditions, farmers need to continuously improve cost efficiency, especially in feed components which constitute

the largest expense, as well as enhance livestock health management. With optimal management, this business is not only financially feasible but also has the potential to be further developed on a larger and more sustainable scale (Gittinger, 1986; Siregar, 2009).

#### Conclusion and Recommendation

Based on the results of the pig farming business analysis at Pokdakan Dukuh Gangga Sedana, it can be concluded that this business is feasible and profitable to be developed. This is indicated by the total revenue of Rp. 400,000,000 with total production costs amounting to Rp. 314,334,667, resulting in a profit of Rp. 85,665,333 in one production period. The R/C ratio value of 1.27 indicates that every Rp. 1 of cost incurred is able to generate Rp. 1.27 in revenue, meaning that the business operates efficiently and provides profit. In addition, the Break Even Point (BEP) price value of Rp. 28,576/kg is lower than the actual selling price of Rp. 36,000/kg, indicating that the business has a relatively high margin of safety against the risk of price declines.

From the technical production aspect, the business system that integrates breeding and fattening provides advantages in cost efficiency and production independence. The business scale, which reaches 100 pigs with a total production of approximately 11,000 kg, also indicates that the business has reached an economic scale. However, the cost structure shows that feed is the largest component of production costs, making feed efficiency a key factor in the success of the business. Overall, this pig farming business is not only financially feasible but also has the potential to be further developed if supported by good business management and appropriate risk control.

recommended that farmers focus more on improving production cost efficiency, especially on feed components which constitute the largest share of production costs. Feed optimization can be achieved through proper

feed formulation, the utilization of alternative local feed ingredients, and improving feed conversion efficiency so that costs can be reduced without decreasing livestock productivity. In addition, livestock health management needs to be improved through the implementation of good biosecurity practices, vaccination programs, and regular pen sanitation in order to minimize disease risks and reduce mortality rates, thereby maintaining business productivity. Furthermore, farmers should also develop business diversification to increase added value, such as selling breeding stock, utilizing waste as organic fertilizer, or processing derivative products. Strengthening business management through better financial record-keeping and well-planned production management is also essential so that farmers can control costs and maximize profits sustainably. Moreover, support from the government and related institutions is highly needed, particularly in the form of training, access to capital, and policies for stabilizing feed and livestock product prices, so that smallholder pig farming businesses can develop more optimally and achieve higher competitiveness in the future.

#### References

- Badan Pusat Statistik. (2022). *Statistik Peternakan Indonesia*. Jakarta: BPS.
- Costales. A.(2006). *Pig Systems, Livelihoods and Poverty: Current Status, Emerging Issues, and Ways Forward* . Pro-Poor Livestock Policy Initiative A Living from Livestock Research Report 1.
- Devendra, C., & Fuller, M. F. (1979). *Pig Production in the Tropics*. Oxford University Press.
- Downey and Erickson. (1992). *Agribusiness Management*. New York: McGraw-Hill.
- Gittinger, J. P. (1986). *Analisis Ekonomi Proyek-Proyek Pertanian*. UI Press.



- Kadariah. (2001). *Evaluasi Proyek Analisis Ekonomi*. Lembaga Penerbit FE UI.
- Kementerian Pertanian Republik Indonesia. (2021). *Outlook Komoditas Peternakan*. Jakarta: Kementerian Pertanian RI.
- Sihombing, D. T. H. (2010). *Ilmu Ternak Babi*. Gadjah Mada University Press.
- Siregar, S. B. (2009). *Pengelolaan Usaha Ternak*. Penebar Swadaya.
- Soekartawi. (2006). *Analisis Usaha Tani*. UI Press.
- Suratijah, K. (2006). *Ilmu Usahatani*. Jakarta: Penebar Swadaya.