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Research Article

## Profit Analysis of Pig Farming Business in Lansot Village, South Tomohon District (Case Study)

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### Keywords:

Profitability;  
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**Abstract:** This research aims to evaluate the financial viability of Deglothy Farm, a pig farming enterprise located in Lansot Village, South Tomohon District. The study utilized surveys and interviews, drawing on both primary and secondary data sources. The analysis focused on calculating revenues and expenses over a one-year period, from April 2024 to March 2025. Findings indicate that Deglothy Farm operates with a high level of efficiency. The total annual operational expenses amounted to IDR 557,993,952, comprising fixed costs of IDR 56,811,952 and variable costs of IDR 501,182,000. During the same period, the farm generated total revenue of IDR 1,344,250,000, resulting in a net annual profit of IDR 786,256,048. In summary, Deglothy Farm's pig farming business proves to be economically profitable and sustainable.

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## INTRODUCTION

Animal husbandry is the activity of cultivating and caring for livestock to obtain specific benefits. One type of animal husbandry that is growing in Indonesia is pig farming. The high demand for pork, especially in non-Muslim-majority areas like Tomohon City, makes this business a promising business. Furthermore, pigs are known for their rapid reproduction and growth, making them an effective source of animal protein.

Data from the North Sulawesi Statistics Agency (BPS) in 2024 recorded a pig population of 397,942 in the province, of which 21,921 were in Tomohon City. One of the thriving farms in this region is Deglothy Farm, which began operations in 2011 with only one sow. Overtime, the business grew and by 2023 had 600–700 head. However, in 2024, the population dropped drastically to around 75 head due to an African Swine Fever (ASF) outbreak. Although the livestock were not infected due to vaccination, production and sales were still affected. Currently, marketing is limited to 3–7 pigs at a price of around IDR75,000 per kilogram live weight, sold directly to slaughterers on the farm. With this background, researchers were interested in analyzing the profitability of the pig farming business at Deglothy Farm, Lansot Village, South Tomohon District.

The study reveals that Deglothy Farm, as a large-scale professionally managed pig farming business, was able to achieve an annual net profit of IDR 786,256,048 from a total revenue of IDR 1,344,250,000 and operational costs of IDR 557,993,952, which shows a far superior economic performance compared to the findings of previous studies, such as Pardede (2015) who recorded an annual profit of IDR 71,624,425 in the people's farm in Cigugur Village, Simangunsong (2022) with a net income of IDR 51,050,554 per period in Jekan Raya District, Anes (2020) with a profit of IDR 30,065,469 from the sale of piglets, and Rauan et al. (2021) who reported an annual income of IDR 347,268,334 and an R/C Ratio of 1.9, Lay et al. (2022) in Alor Regency which only recorded an average income of IDR 10,289,675 per year with most of it being non-cash, and Pitri (2024) in Samalantan with an income of IDR 103,932,353, a profit of IDR 60,530,030, and an R/C Ratio of 1.97, so that overall it shows that Deglothy Farm occupies a superior position in terms of business scale, cost efficiency, and profit level, and is very worthy of continued development as a sustainable pig farming business model.

## RESEARCH METHODS

### Research Location and Timeline

This research was conducted at Deglothy Farm, located on Jalan Sawangan, Lansot Village, South Tomohon District, owned by Mr. Daan Kairupan, S.Pi. The research took place within the framework of the Independent Campus Research Program (PPKM) from April to July 2024, with data revalidated in March 2025.

### Data Collection Method

Data collection was conducted using survey and interview methods using questionnaires to obtain information directly from the business owner. The survey involved collecting data from a large sample of the population, while interviews were used to explore respondents' perspectives and experiences. This study used primary data obtained directly through interviews and field observations, as well as secondary data sourced from books, articles, and previous research reports.

### Sampling Technique

This research employs a case study approach focusing on the Deglothy Farm pig farm owned by Mr. Daan Kairupan in Lansot Village, South Tomohon District. A case study is a research method that examines a program, event, or activity within an individual, group, or organization in depth and in detail with the goal of gaining a comprehensive understanding, usually related to a real-life event (Rahardjo, 2017).

### Definition of Concepts, Variables, and Measurement

Respondents in this study were the owners of the Deglothy Farm pig farm. Production costs include all expenses incurred for production factors and equipment during business operations. Fixed costs consist of depreciation of the barn, equipment depreciation, and taxes, which remain relatively constant each year. Variable costs, on the other hand, change with the level of business activity and include feed, medication, permanent labor wages, and electricity costs. Total costs are a combination of fixed and variable costs. Revenue is the total result from the sale of livestock products, and profit is obtained from the difference between revenue and total costs.

### Data Analysis Model

The collected data will be analyzed using descriptive methods to explain characteristics such as education level, age, farmer experience, production costs, and the number of pigs raised by age. This study employed a survey method with observations and interviews using a questionnaire designed to describe the general conditions of the study site. The analysis focused on the profitability of the pig farming business at Deglothy Farm, which includes:

1. Total costs (TC) are calculated by adding fixed costs (FC) and variable costs (VC), using the formula:  $TC = FC + VC$
2. Revenue Analysis: Revenue (TR) is obtained from the sale of pigs based on live weight (Q) multiplied by the price per kilogram (P), using the formula:  $TR = P \times Q$
3. Profit Analysis: Profit ( $\pi$ ) is obtained from the difference between total revenue (TR) and total costs (TC), using the formula:  $\pi = TR - TC$

## RESULTS AND DISCUSSION

### General description of the research location

South Tomohon District is located at an altitude of approximately 827 meters above sea level and covers an area of 35.27 km<sup>2</sup>. This area borders Central Tomohon District to the north, Sonder District to the south, West Tomohon District to the west, and East Tomohon District to the east. This district consists of 12 sub-districts, one of which is Lansot Village, which covers 3.55 km<sup>2</sup>. The research was conducted in Lansot Village, South Tomohon District, on a private pig farm called Deglothy Farm, founded by Mr. Daan Kairupan, S.Pi in 2011. The farm initially had only one pregnant sow and gradually expanded without relying on external procurement of sows. It is located near the Griya Lestari 2 housing complex.

Table 1. Respondent's characteristics

Description	
Name	Daan Kairupan S.Pi
Age	53 years old

Education	S1
Farming experiences	14 years
Land area	5.000 m <sup>2</sup>

### Housing Management

Deglothy Farm implements a housing system differentiated by function, including pens for sows, pregnant sows, calving sows, fattening sows, and bull pens. In April 2024, the farm employed two people, but the workforce was reduced to one person in March 2025. The pens are constructed with permanent structures: cement floors, zinc roofs, brick walls, and an adequate ventilation system. The pens play a crucial role in protecting the pigs from extreme weather such as rain and hot sun, preventing disturbances from wild animals and theft, and facilitating farm management and operations (Makiah and Septian, 2024). Located quite far from residential areas and with abundant access to water, this makes it a strategic location for development. The pens are constructed using a double model, with two rows of buildings facing or opposite each other. Based on their construction, the pig pens are considered double pens because they have two rows of pens that can be located facing or opposite each other (Hurek et al., 2021). In terms of biosecurity, the farm owner implements strict supervision. Outsiders are not permitted to enter the pens without permission, and each visitor must spray disinfectant on their hands and feet beforehand. For marketing, pigs are sold live, with weighing and delivery taking place outside the farm area. This strategy is considered effective in maintaining livestock health from the risk of disease spread.

### Feeding

The feeding pattern at Deglothy Farm is adjusted to the age of the livestock. Feed is provided twice daily, at 9:00 AM and 2:00 PM WITA, after the pens have been cleaned. Pigs in the starter phase are fed granular feed, while those in the grower and finishing phases, as well as bulls and sows, are fed a mixed feed consisting of rice bran, corn bran, and concentrate. Table 2 shows the daily feeding rates: twice daily: 0.4 kg/head/day for the starter phase, 2.5 kg/head/day for the grower phase, 3 kg/head/day for the finisher phase, 4 kg/head/day for sows, and 3 kg/head/day for male sows. The pig feeding rates for the grower and finisher phases are the same as those in research by Oroh et al. 2023.

Table 2. Amount of Feeding per Day

Phase	Age (Month)	Total (kg/day)
Starter	1-2 month	0,4 kg/head/day
Grower	3-5 month	2,5 kg/head/day
Finisher	5-6 month	3 kg/head/day
Female	6 year	4 kg/head/day
Male	3 year	3 kg/head/day

Table 3. Total feed cost

Phase	Value (IDR)
Starter	43.164.000
Grower	137.445.000

Finisher	131.670.000
Female	138.780.000
Male	20.817.000
Total/year	471.876.000

Table 3 shows that the annual feed intake for pigs at Deglothy Farm is IDR. 471,876,000. The farm uses a variety of feed mixes, including a mix of 35% rice bran, 40% corn bran, and 25% concentrate for grower and finisher pigs; a mix of 70% rice bran, 25% corn bran, and 5% concentrate for male and female pigs; and a mix of pre-starter and starter feeds, which are processed pellets from the factory. Feed mixing is carried out in the barn by hand using a scoop, similar to research (Oroh et al. 2023).

Table 4. Medicines and Vitamins

No	Type	Price/ml (IDR)	Usage/year (ml)	Total (IDR/year)
1.	Ferdex	610	400	244.000
2.	Wormectin	2.800	400	1.120.000
3.	Injekvit B-Plex	345	400	138.000
4.	Roxine	440	400	176.000
5.	Marbovit	650	400	260.000
6.	Intramax	2.420	400	968.000
Total				2.906.000

As shown in Table 4, Deglothy Farm uses a variety of medications and supplements to maintain the health and productivity of its pigs. Ferdex is administered to treat anemia, increase appetite, and accelerate growth. Wormectin is used for grower and finisher pigs, or sick pigs, to treat worm infections and prevent disease. Injekvit B-Plex is administered to pregnant, lactating, or stressed sows to support their health and reproductive systems. Roxine is used to treat bacterial infections in grower and finisher pigs, while Marbovit is given to sick and growing pigs. Intramax is used for pigs experiencing stress, illness, or growth. The total cost of purchasing medications and vitamins for a year is IDR 2,906,000.

## Profit Analysis

### Production Costs

Production costs are the total expenses incurred by a company during the process of converting raw materials into finished products within a specific production period. These expenses include direct raw material costs, direct labor costs, and factory overhead costs, which encompass all indirect costs required to support production activities. Production costs are a crucial component in calculating a product's cost and serve as the basis for determining the selling price (Mustofa and Bakce, 2024).

Table 5 Fixed Costs of Pig Farming Business

No	Components	Fixed cost (IDR)
1.	Tax	800.000
2.	Depreciation	
	2.1 Cages	46.923.108
	2.2 Car	6.500.000
	2.3 Cart	150.000
	2.4 Scales	280.000

2.5 Water tank	1.116.000
2.6 Nipples	186.494
2.7 Buckets	9.750
2.8 Sprayers	48.000
2.9 Hoses	64.800
2.10 Brooms	10.000
2.11 Scoops	48.800
2.12 Water pump	675.000
<b>Total cost/year</b>	<b>56.811.952</b>

### Fixed Costs

Fixed costs are costs that remain constant. As shown in Table 5, the annual fixed costs of the Deglothy Farm livestock business in this study were recorded at IDR 56,811,952, significantly higher than the results of research (Oroh, 2021), which recorded fixed costs of IDR 26,466,000, equivalent to 7.67% of total production costs. This indicates a significant difference in cost structure and potential business scale between the two livestock units.

### Variable Costs

Variable costs are costs that fluctuate, such as feed (rice bran, concentrate, corn bran, grain, medication, labor, and electricity). Table 6 shows that variable costs in a pig farm include labor of IDR 24,000,000/person/year, electricity of IDR 2,400,000/year, animal feed of IDR 471,876,000/year, and medication and vitamins of IDR 2,906,000. This results in a total annual variable cost at Deglothy Farm of IDR 501,182,000, much lower than the variable costs incurred by pig traders at the Bolu Animal Market, according to research (Kartoni et al. 2024), which is approximately IDR 157,462,121 per month, or approximately IDR 1,000,000 per year. A total of 1,889,545,452 IDR per year reflecting a significant differences in spending patterns and business scale between the two activities.

Table 6 Components and Values of Variable Costs

No	Components	Price/year
1.	Labor	24.000.000
2.	Electricity	2.400.000
3.	Feed	471.876.000
4.	Medicine	2.906.000
	<b>Total/year</b>	<b>501.182.000</b>

### Total costs

Total costs are the costs incurred during the production process, consisting of fixed costs and variable costs. Total costs are the sum of all expenses a company must incur during the production of goods or services within a specific time period. Total costs consist of two main components: fixed costs and variable costs. Fixed costs are expenses that remain constant despite changes in production volume, such as rent, fixed wages, and depreciation of production equipment. Variable costs, on the other hand, are costs that change with production volume, such as raw material costs, direct labor wages, and energy consumption during the production process. By combining these two types of costs, total costs encompass all expenses necessary to ensure the production process runs from start to finish until the product is ready for sale. A thorough understanding of total costs is crucial for management in making decisions

related to cost control and product pricing (Hansen and Mowen, 2017). Table 7 shows that fixed costs amount to IDR. 56,811,952 and variable costs of IDR. 501,182,000, the total cost of the pig farming business is IDR. 557,993,952 per year.

Table 7 Total Costs of Deglothy Farm Pig Farming Business

	Value
Total cost	
Fixed cost (IDR)	56.811.952
Variable cost (IDR)	501.182.000
Total cost/year	557.993.952

## Revenue

According to Wardani (2018), revenue is the cost received from the sale of pigs, expressed in kilograms of live weight multiplied by the price per kilogram, expressed as an average (IDR/year). Tables 8 and 10 show the annual revenue generated by the owner of Deglothy Farm. With 95 fattening pigs, averaging 100 kg/head/live weight, the farm can generate revenue of IDR 741,500,000. Furthermore, the revenue from unsold pigs can be considered a business savings in case problems arise in the pig farming business, such as when the ASF virus outbreak caused a drastic drop in market prices, resulting in losses for many farms and their discontinuation. The starter phase is IDR 78,750,000/75 pigs, the grower phase is IDR 224,000,000/40 pigs, and the parent pigs are IDR 1,000,000/year. 270,000,000/15 females, and IDR. 30,000,000/2 males. Total income from the remaining livestock is IDR. 602,750,000. Adding the income from livestock sales to the income from the remaining livestock results in an annual income of IDR. 1,344,250,000.

Table 8 Income from Deglothy Farm Pig Farming Business

Month	Sold (head)	Sold (kg)	Price	Total
May	16 ekor	100	75.000	120.000.000
July	8 ekor	100	75.000	60.000.000
September	31 ekor	100	75.000	232.500.000
December	22 ekor	100	80.000	176.000.000
January	18 ekor	100	85.000	153.000.000
Total/year	95 ekor	500		741.500.000

Table 9 Income from existing livestock

Phase	Number of livestock (head)	Price (IDR)	Average body weight (kg)	Total (IDR)
Starter	75	70.000	15kg	78.750.000
Grower	40	70.000	80kg	224.000.000
Female	15	60.000	300kg	270.000.000
Male	2	60.000	250kg	30.000.000
Total	132	260.000	645	602.750.000

Table 10 Total Overall Acceptance Costs

Description	Value (IDR)
Receipts from livestock sales	741.500.000
Receipts from remaining livestock	602.750.000

Total/year	1.344.250.000
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### Profit

Profit is the total revenue minus the total costs (IDR/year). The profit calculation for the Deglothy Farm pig farming business, owned by Mr. Daan Kairupan S.Pi, can be seen in Table 11, which shows that the profit generated or earned from the Deglothy Farm pig farming business in one year was IDR 786,256,048. This profit figure, of course, requires first calculating the annual revenue of IDR 1,344,250,000, subtracting the total annual costs of IDR 557,993,952, resulting in an annual profit of IDR 786,256,048.

Table 11 Profit of Deglothy Farm's Pig Farming Business

Description	Value (IDR/year)
Revenue	1.344.250.000
Total cost	557.993.952
Profit	786.256.048

### CONCLUSION

Based on the research results, Deglothy Farm's pig farming business is very well managed. The total annual production cost is IDR. 557,993,952, consisting of fixed costs of IDR. 56,811,952 and variable costs of IDR. 501,182,000. With business revenue of IDR. 1,344,250,000 per year, Deglothy Farm earns an annual profit of IDR. 786,256,048, indicating that this business is running efficiently and profitably.

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