Bantara Journal of Animal Science **p-ISSN: 2656-9701**
Vol. 7, No. 2, October 2025 **e-ISSN: 2657-1587**
https://dx.doi.org/10.32585/bjas.v7i2.7308 Journal homepage: https://journal.univetbantara.ac.id/index.php/bjas/index

Feasibility of Layer Duck Farming in Wonomulyo Subdistrict, Polewali Mandar Regency

Najmah Ali[1], Suhartina[1], Rahmawati Ning Utami[2], Dahniar[2] and Nur Fadilah[1]

[1]Faculty of Animal Husbandry and Fisheries, Universitas Sulawesi Barat, Indonesia

[2]Faculty of Agricultural and Forestry, Universitas Sulawesi Barat, Indonesia

*Corresponding author : najmahali@unsulbar.ac.id

* *Received for review September 29, 2025 Accepted for publication November 03, 2025*

Abstract: Duck egg farming is one of the important sources of income for rural communities, and the success of this business largely depends on cost efficiency and the level of profit obtained. This study aims to analyze the cost structure, revenue, and financial feasibility of duck egg farming in Wonomulyo Subdistrict based on the average data from 70 respondents. Data were collected through a survey method with structured interviews regarding the number of livestock, land area, production costs, and farm revenue. The results showed that the average number of ducks reared was 130 birds with an average land area of approximately 25 m² per farmer. Variable costs reached IDR 52,364,000 per year, while fixed costs amounted to IDR 5,190,000 per year, resulting in an average total production cost of IDR 57,554,000 per year. The average revenue from egg production was IDR 65,000,000 per year, yielding a net profit of IDR 7,446,000. Financial feasibility analysis indicated an R/C ratio of 1.13, a Break Even Point (BEP) of 28,777 eggs, and a Return on Investment (ROI) of 12.9% per year. These values demonstrate that duck egg farming is feasible to continue, as revenue exceeds production costs, profits are positive, and production is above the break-even point. The business can be further developed by improving cost efficiency and optimizing livestock productivity.

Keywords: Laying Ducks; Production Costs; Revenue; Financial Feasibility

Introduction

One of the poultry sub-sectors with significant potential to support food security and increase rural household income is duck egg farming. Consumption of eggs and poultry meat has been steadily increasing along with population growth, changes in dietary patterns, and public awareness of the importance of animal protein intake. Although layer chickens still dominate as the main egg producers, laying ducks are becoming an increasingly attractive alternative due to their relatively high nutritional content and their important role in traditional cuisine across various regions.

Wonomulyo Subdistrict is one of the areas in Polewali Mandar Regency that possesses abundant natural resources and a community culture closely linked to agrarian activities. This potential opens opportunities for the development of livestock businesses, including duck egg farming. Based on surveys and literature review, research specifically addressing the feasibility of duck egg farming in Wonomulyo Subdistrict is still very limited. However, assessing business feasibility at the local level is crucial, as each region differs in terms of availability of production factors, market access, geographical conditions, and socio-economic characteristics of farmers. These differences can influence efficiency, productivity, and the sustainability of the business.

Previous studies have shown that duck egg farming can provide promising profits, indicating that duck eggs have a fairly high demand, especially as raw materials for the food industry and local culinary products (Mulyati, 2021). Similarly, a study in Kusan Hilir, South Kalimantan, demonstrated that duck egg farming has a B/C ratio greater than 1, indicating that the business is financially feasible. However, these findings cannot be directly generalized to other regions, including Wonomulyo

Subdistrict, due to variations in input costs, productivity levels, and market access (Mis'adah and Maulina, D, 2023).

The biggest challenge in duck egg farming is the high cost of feed. Feed typically accounts for approximately 70–85% of total production costs, so fluctuations in feed prices can significantly affect farmers' profits (Permatasari, 2021). The availability of local raw materials such as corn, bran, or soybean meal is a key factor in cost efficiency in each region. In addition, technical management aspects such as the quality of breeding stock, maintenance practices, and disease control also greatly influence egg production levels. If these aspects are not properly managed, the business is at risk of incurring losses, even when market demand is relatively high

Research has largely focused on business analysis within local contexts, showing that, in general, duck egg farming is profitable; however, external factors such as feed price fluctuations, limited capital, and market access remain major challenges (Sari et al., 2020). Nevertheless, such studies have not been conducted specifically in Wonomulyo Subdistrict, creating a knowledge gap. This means it is not yet known whether findings from other regions are relevant to the conditions of farmers in Wonomulyo, or whether there are unique factors in the area that differentiate it..

Based on the description above, it is clear that there is a research gap regarding duck egg farming in Wonomulyo Subdistrict. The lack of empirical data on business feasibility in the area leaves local governments, farmers, and potential investors without a solid information basis for decision-making. Therefore, this study aims to contribute by analyzing the feasibility of duck egg farming in Wonomulyo Subdistrict, Polewali Mandar Regency, through technical and financial approaches..

The research questions in this study are:

1. What is the overview of costs and revenues of duck egg farming in Wonomulyo Subdistrict?

2. Is duck egg farming in Wonomulyo Subdistrict financially and economically feasible?

This study aims to determine the overview of costs and revenues of duck egg farming and to assess the financial and economic feasibility of duck egg farming in Wonomulyo Subdistrict. The results of this study are expected to provide useful information for the community, local government, and other stakeholders interested in developing alternative poultry businesses, particularly duck egg farming, in Polewali Mandar Regency.

Materials and Methods

Time and Place of the Study

This study was conducted from May to July 2025 in Wonomulyo Subdistrict, Polewali Mandar Regency, West Sulawesi Province. The research location was selected purposively, considering that Wonomulyo Subdistrict is one of the areas with potential for the development of duck egg farming but has not yet been studied in depth regarding its business feasibility aspects.

Tools and Materials

The main tools used in this study were stationery and Microsoft Excel software for cost and revenue analysis. The materials used included research questionnaires designed to collect information on technical data, production costs, revenue, and challenges faced by farmers. In addition, supporting documents were used, such as business cost records, egg sales reports, and documents related to business activities from the respondent farmers.

Research Method

The method used in this study was a survey to collect primary data on production costs, the number of laborers, selling prices, egg production quantity, and challenges faced by farmers.

Population and Sample

The sample in this study consisted of duck farmers in Wonomulyo Subdistrict, Polewali Mandar Regency. Based on previous observations conducted by the researchers, the total population of duck farmers in Wonomulyo Subdistrict was 235 households. The sample was selected using random sampling because the population exceeded 100 individuals, while the sampling technique applied the Slovin formula as follows:

n =N/(1+(N x e^2))

n =235/(1+(235 x 〖0,1〗^2))

n =235/(1+(235 x 0,01)) = 235/(1+2,35) = 235/3,35 = 70

Research Procedure

Field data were collected through direct interviews with farmers using structured questionnaires, direct observation at the business sites to record the condition of the barns, rearing systems, and feeding techniques, as well as documentation of business costs and revenues from farmers' records.

Data Analysis consists of:

Cost and Revenue Analysis (Revenue-Cost Analysis): Total production costs were calculated from fixed costs (depreciation of barns and equipment) and variable costs (feed, labor, and medications). Revenue was calculated by multiplying total egg production by the average selling price.

Financial Feasibility Analysis: This includes profit (π), R/C Ratio, Break Even Point (BEP), and Return on Investment (ROI).

Results and Discussion

An important aspect in assessing the efficiency of livestock farming is the cost structure. Based on the analysis shown in Table 1, variable costs reach IDR 52,364,000 per year, or around 90.9 percent of the total costs. Feed is the largest component of variable costs; in this study, feed costs account for more than 70 percent of total operational costs. The dominance of feed in the cost structure is a common characteristic in poultry farming, as egg productivity heavily depends on the quality and quantity of feed provided. This condition indicates that feed price fluctuations, especially for corn and concentrate, significantly affect farmers' profits. It also makes the availability of local feed and efforts to substitute alternative feed strategic factors in reducing production costs. This is in line with a study on the financial and economic feasibility of layer duck farming in Musi Rawas Regency, which found that the largest portion of operational costs was spent on feed, amounting to IDR 412,223,995 per year, or 54% of total operational expenditures. This is because layer duck feed has a significant impact on egg production; the better the quality of the duck feed, the higher the quality of the eggs produced (Nila Suryati, Verry Yarda , Julia Prima , 2021).

Table 1. Cost, Revenue, and Financial Feasibility Analysis of Layer Duck Farming in Wonomulyo Subdistrict

Description	Value (IDR) / Unit of Analysis
Number of Livestock	130 Heads
Land Area	25 m²

Variable Costs (VC)	52.364.000
Fixed Costs (FC)	5.190.000
Total Costs (TC)	57.554.000
Total Revenue (TR)	65.000.000
Profit (π = TR – TC)	7.446.000
R/C Ratio	1,13
Break-Even Point (eggs)	28.777 Eggs
Actual Production	32.500 Eggs
ROI	12,9 %

Source: Processed Primary Data, 2025

Fixed costs are recorded at approximately IDR 5,190,000 per year, or around 9.1 percent of the total costs. These fixed costs mostly come from the depreciation of cages, equipment, and parent stock. This aligns with a case study at Ibu Sumilah's Farm in Sido Rukun Village, Margo Tabir District, Merangin Regency, which stated that the largest variable cost incurred was feed purchase, consisting of two types: BR 1 and BR 2. The smallest cost in Ibu Sumilah's broiler chicken farming during one harvest period was the purchase of sacks (Fikriman, Wike Wahyuni,and Asnawati, 2021).

The average revenue from layer duck farming in Wonomulyo District reaches IDR 65,000,000 per year per farmer. This revenue is obtained from the sale of eggs produced by an average of 130 ducks, with a productivity of around 250 eggs per duck per year. These figures indicate that duck farming has potential as a source of household income, especially in rural areas with limited access to formal employment sectors.

After deducting the total production costs of IDR 57,554,000 per year, a net profit of IDR 7,446,000 per year is obtained, or approximately IDR 620,000 per month. This profit is relatively small compared to the effort, risk, and uncertainties in feed prices and egg selling prices in the market. This indicates that the profit margin for farmers is still relatively low. The thin profit margin also shows a high level of business vulnerability, as even small changes in input prices or a decrease in productivity can directly impact the sustainability of the business.

A positive profit indicates that the business still generates a surplus and is not operating at a loss. Layer duck farming remains financially viable, although opportunities to increase income heavily depend on cost-efficiency strategies, particularly feed management, as well as the farmers' ability to access markets with more stable and profitable selling prices. If farmers can improve duck productivity through better management practices or diversify their products (such as selling culled ducks and duck manure as fertilizer), the potential for increased revenue and profit will be greater.

Financial feasibility analysis aims to assess whether a business can operate sustainably from a monetary profit perspective. Based on the research results, layer duck farming in Wonomulyo District shows an R/C ratio of 1.13. This means that for every IDR 1 spent on production costs, the farmer is able to generate IDR 1.13 in revenue. An R/C ratio greater than 1 indicates that the business is financially efficient and feasible to operate. Although the value is not very high, it still confirms a positive profit margin, allowing the business to survive and avoid losses. These results are in line with previous studies. (Suci Andanawari, Puji Hartati, Suharti, 2021) In Magelang, a study on the Income Analysis of Layer Duck Farming (in Kedungsari Village and Trasan Village) found that the average number of ducks per farmer was 32, and businesses using a semi-intensive or free-range system achieved an R/C ratio of 1.58, indicating a higher profit margin compared to the average condition in Wonomulyo. A similar study reported that the calculated business efficiency, or R/C ratio, was 1.18. These results indicate that layer duck farming conducted by farmers in Sindang

District, Indramayu Regency, is already efficient, as the figures are greater than 1(Herlina L and Fitriani A., 2023).

The Break Even Point (BEP) is 28,777 eggs per year, representing the minimum production level that must be achieved to cover costs. Meanwhile, the actual production reaches 32,500 eggs per year, or approximately 13% higher than the BEP. This condition indicates that farmers have a safety margin against losses. Thus, even if production decreases due to disease or rising feed prices, the business still has a buffer to remain operational without incurring significant losses. This is in line with a study on the financial feasibility analysis of layer duck (Anas platyrhynchos) farming, which stated that the Break Even Point (BEP) of production for the Usaha Sejahtera layer duck farm in Seunebok Baru Village, Manyak Payed District, Aceh Tamiang Regency, was 16,867 units. The actual production of the Usaha Sejahtera layer duck farm, at 116,700 units, is much higher than the calculated BEP (Satya Bella Priyandini, Rozalina Rozalina, Kiagus Muhammad Zain Basriwijaya Basriwijaya , 2025).

Meanwhile, the Return on Investment (ROI) of 12.9% per year indicates a fairly good rate of capital return. Although this percentage is not very high compared to large-scale business sectors, the ROI is still relatively profitable for smallholder farmers, especially when compared to conventional financial instruments such as savings accounts or bank deposits, which generally offer lower interest rates. This indicates that layer duck farming not only contributes to food availability but also serves as an alternative productive investment for rural communities.

Overall, the financial feasibility analysis confirms that layer duck farming in Wonomulyo District is viable for further development, even though the profit margin is still thin. Expanding the scale of the business, improving feed cost efficiency, and innovating in product marketing can serve as key strategies to strengthen financial feasibility in the future.

Conclusion

Conclusion should be explained clearly and must answer the goal of the study or hypothesis. Do not repeat the abstract or just show the results of research, but must describe the innovation or improvement of existing science recently. Do not use bullet/ numbering. Conclusion must be written using 40 until 80 words. And there is no suggestion if not required. Written in Times New Roman 12 Font Size, and single space line.

References

Fikriman, Wike Wahyuni,and Asnawati. (2021). Financial Analysis of Broiler Chicken Farming Business. ejournal.wiraraja.ac.id, 70-83.

Herlina L and Fitriani A. (2023). Profit and Efficiency Analysis of Semi-Intensive Layer Duck Farming: A Survey-Based Approach in Sindang District, Indramayu Regency. Jurnal Pemikiran Masyarakat Ilmiah Berwawasan Agribisnis, 3234-3239.

Mis'adah and Maulina, D. (2023). Income Analysis of Layer Duck Farming in Kusan Hilir District, Tanah Bumbu Regency. Jurnal Ekonomi Integra, 164 - 172.

Mulyati, S. (2021). Feasibility Analysis of Intensive Layer Duck Farming in Teluk Keramat District, Sambas Regency (Case Study: Mr. Dilhan's Duck Farming Business). Journal of Economics and Business, 1-9.

Nila Suryati, Verry Yarda , Julia Prima . (2021). Financial and Economic Feasibility of Layer Duck Farming in Musi Rawas Regency. Jurnal Ilmu Pertanian Kelingi, 78-89.

Permatasari, D. A. (2021). Production Cost Efficiency of Layer Duck Farming in Candi, Sidoarjo. Media Kedokteran Hewan, 79-89.

Satya Bella Priyandini, Rozalina Rozalina, Kiagus Muhammad Zain Basriwijaya Basriwijaya . (2025). Analysis of the Financial Feasibility of the Laying Duck Business (Anas plathyrynchos) in Seunebok Baru Village, Manyak Payed District, Aceh Tamiang Regency (Case Study: Prosperous Business), Indonesia . Jurnal Riset Agribisnis dan Peternakan, 60-70.

Suci Andanawari, Puji Hartati, Suharti. (2021). Income Analysis of Layer Duck Farming (Case Study in Kedungsari Village and Trasan Village, Bandongan District, Magelang Regency). Journal of Agricultural Extension Development, 18-24.

Yuni Hidayah Sari, Teguh Endaryanto, Ktut Murniati. (2020). Financial Analysis of Layer Duck Farming with Intensive Rearing System in Gadingrejo District, Pringsewu Regency. Journal of Food System and Agribusiness, 25-33 .