Eastern Journal of Agricultural and Biological Sciences (EJABS)
Website: https://qabasjournals.com/index.php/ejabs

Profitability and Risk Analysis of Duck Livestock Business Intensive and Traditional In Buay Madang Timur District, OKU Timur Regency

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ARTICLE INFO

Received: October 15, 2022
Accepted: November 20, 2022
Volume: 2
Issue: 3

KEYWORDS

Ducks, Profitability, Risk Analysis

ABSTRACT

Duck is one type of commodity from the livestock sub-sector that can accelerate national economic development. Based on the study's results, the profitability value of intensive and traditional duck farming was 90.3 for intensive farming and 8.6 for traditional livestock, meaning that both > 0. profitability > 0, meaning that duck farming was profitable. Based on the calculation results, the coefficient of variation value is 0.08 for intensive ducks and 0.09 for traditional ducks, meaning that CV 0.5 or L 0 states that duck breeders will always avoid losses.

1. Introduction

Analysis of Ducks Duck also has the potential to be developed because it has good adaptability and has many advantages over other poultry, including duck farming which is more resistant to disease. In addition, ducks have efficiency in converting feed into good meat (Akhadiarto, S. 2017). Duck is one type of commodity from the agricultural sub-sector that is capable of accelerating the development of the national economy. On the demand side, currently, the production of duck eggs only meets the needs of the domestic market, 65% of which is met from free-range chicken eggs, purebred chickens, and quail (Abidin, Z. 2002).

Data from the South Sumatra Province Livestock Service in 2020 states that South Sumatra Province is one of the provinces that produce duck eggs and may be in the development of ducks which has increased from year to year. One of the districts of South Sumatra that may be in the development of laying ducks is East OKU District.

In South Sumatra, duck as one of the local germplasm, Gotu kola duck has advantages over several other types of ducks seen from egg weight and weight. The efforts made by BPTP Balitbangtan South Sumatra protect it with the Fisheries Service, and considering that it is currently being developed in South Sumatra, East OKU Regency is an area that is developing livestock business, considering that the land in East OKU Regency is very supportive. East OKU is included in the top four, with the highest population at 184,938, which can be seen in Figure 1 below.

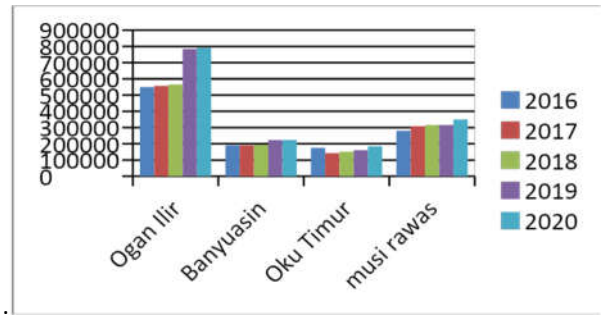

Figure 1. Duck population in South Sumatra 2016-2021.
(Source: BPS South Sumatra, 2021)

From Figure 1 above, it can be seen that East OKU Regency has increased from 2017 to 2020; the increase can be seen in Table 2, namely the table of population and poultry from 2017 to 2020 as follows:

Table 1. Poultry Livestock Population Per year, 2017-2020

LIVESTOCK	YEAR			
	2017	2018	2019	2020
Free-range Chicken	583,835	685,293	705,840	721,435
Broiler	305,000	2,579,500	2,585,195	2,896,000
Layer	11,900	15,000	21,100	23,300
Duck	142,297	151,435	160,369	184,938

Source: East OKU Fisheries and Livestock Service, 2021

From Table 1 above, it can be seen that the duck population in East OKU Regency experienced a population decline from 2016 to 2017; this was due to the traditional farming system so that the results from duck farming could not be said to be efficient, then continued to increase from 2017 to 2019 breeders have started to abandon this traditional livestock method. One effort that is expected to be able to overcome this problem is to pay attention to the maintenance system from a traditional system to an intensive system by raising ducks in cages. One area that has a high population is East Buay Madang District. The population of duck breeders in East OKU Regency is as follows:

Table 2. Number of Duck Breeders in East OKU Regency, 2021

No	Subdistrict	Duck Farmer
1	Belitang Mulya	130
2	Buay Madang Timur	108
3	Buay Pemuka Bangsa Raja	64
4	Buay Pemuka Peliung	67
	Total	369

Source: East OKU Fisheries and Livestock Service, 2021.

Based on Table 2, it can be seen that East Madang Buay is the highest population after Belitang Mulya, but East Madang Buay offers various types of ducks, namely Mojosariduck, Tegal duck, Magelang duck, Alabio duck, Cirebon duck. Ducks are economically very profitable if the number of ducks that are kept reaches a certain level. Economic profit is determined by the scale of the duck business that is kept. The bigger the business, the bigger the profit. In the implementation of the duck farming business, every farmer always expects success in the business. One of the parameters that can be used to measure the success of a business is the level of profit. In addition to wanting to get profits in raising ducks, we should also anticipate things that are not desirable.

One thing we need to know is the risk of duck farming, namely the risk of selling prices and harvests. At certain times it is unavoidable that the selling price of eggs and duck meat can decrease. If it is not anticipated with the right strategy, of course, the risk of loss is in sight. The falling selling price can be predicted or guessed when the harvest is abundant and will be added to by declining demand. Usually, the right time to harvest is in the month of Ramadan to Shawwal, when many people consume duck meat and eggs. It could also be during the year-end holidays, and culinary lovers pamper their tongues to enjoy a variety of dishes outside the home.

Based on the above background, the authors plan to raise a research topic with the title "Analysis of Profitability and Risk of Duck Business in East Buay Madang District in East OKU Regency.

2. Literature Review

The conception of Duck Farming Duck

Maintenance System Based on data from the Ministry of Agriculture (2016), the duck farming system, in general, can be grouped into three, namely:

1 The traditional or extensive system, namely a rearing system where ducks are released or grazed in the fields after the harvest season.
2 Semi-intensive system, namely a rearing system in which the ducks are released or grazed during the day to find food, and the ducks are put back into the cage in the afternoon.
3 The intensive system is a maintenance system where ducks are kept in cages continuously. The duck farming business is not just a sideline but has a business orientation that is directed at an area, both as a branch of business and as a leading business, because the duck farming business is quite profitable and can be used as a source of family income (Apriyantono, et al, 1989).

Business management is the whole process of maintenance activities that take place in a business both continuously and continuously. Maintenance management includes seeds, feed, cages, handling of health, reproduction, post-production, marketing, and business management (Directorate General of Animal Husbandry, 1992).

The products of duck farming are eggs and meat. This yield management principle is guided by efforts to prevent the emergence of bacteria that damage the egg contents. To reduce damage to the contents of the eggs caused by bacteria and other microbes, the eggs must be immediately removed from the cage. In one day, the eggs are taken at least three times. After the eggs are collected, sorting and cleaning of eggs from dirt is carried out and packing them in a special place. Sorting intends to uniform the size of the eggs in the egg rack and separate between whole eggs and damaged ones. To get good production, one of the conditions is that the livestock must be healthy, so it is the duty of the breeder to protect their livestock from all kinds of disease (Windhyarti, S. S. 2002). The products obtained from the duck farming business include: eggs as the main product

Profitability Conception Profitability

Is the company's ability to earn a profit, the greater the level of profit/profit, the better the management in managing the company [5]. The profitability ratio is J. Fred Weston, and Thomas E. Copeland (2010) is measuring the effectiveness of management based on the returns generated from sales and investment. The profitability ratio is a ratio to measure how much profit the company can get [5].

Profitability analysis is an analysis in financial statements that is important because it relates to the level of profit, amount of sales, cost of goods sold, as well as operating expenses and non-operating expenses, to assess sources, persistence, measurement, and main business relationships (Lastinawati, 2016).

This research makes it possible to distinguish performance related to operating decisions and performance related to funding and investment decisions. Company profitability analysis is an important part of financial statement analysis. All financial statements can be used for profitability analysis, but the most important is the income statement. The income statement reports the company's operating results for a period. The main objective of the company is the result of operations, which has an important role in determining the value, solvency and liquidity of the company. One of the relationships between working capital and profitability is sales growth because it has a close and direct relationship with investment in current assets. Working capital management also concerns the administration of current assets and liabilities (Manik, 2017).

$$\text{ROE} = \frac{\textbf{Profit after tax}}{\textbf{Own capital}}$$

Conception of Business Risk

(Cade, Eddie. 2012) states that the definition of risk is different, depending on the purpose. According to him, the right definition of risk from the point of view is exposure to income uncertainty. Meanwhile, according to (Philip, 2001) risk is a financial loss, either directly or indirectly. Bank risk is openness to the possibility of loss (exposure to the change of loss). Meanwhile, according

to Bank Indonesia Regulation (PBI), bank business risk is the risk related to the management of the bank's business as a financial intermediary.

Djojosoedarsono (in Bashori, 2018) notes several definitions of risk in general as conveyed by several authors, including:

1. Risk is a variation of outcomes that can occur over a certain period (H. Arthur Williams dan Richard, , 1997)
2. Risk is uncertainty (uncertainty) that may give birth to lose events (loos) (Abas Salim, 2016)
3. Risk is the uncertainty of the occurrence of events (Soekarto, 2004)
4. Risk is the spread/deviation of the actual results from the expected results (Darmawi, 2005)
5. Risk is the probability of an outcome/outcome that is different from what is expected (Darmawi, 2005)

From these definitions, risk has the following characteristics: 1) It is the uncertainty of the occurrence of an event. 2) It is an uncertainty that, if it occurs, will cause a loss. 2) Types of Risk-Based on PBI Number 13/23/PBI/2011 concerning Application of Risk Management for Islamic Commercial Banks and Sharia Business Units, there are ten types of risks faced by Islamic banks, namely: credit risk, market risk, liquidity risk, operational risk, legal risk, reputation risk, strategic risk, compliance risk, return risk, and investment risk

3. Materials and Methods

The research method used in this study is a case study method. (Sugiyono, 2018) case research is an approach to researching social phenomena through complete and thorough individual analysis, as well as providing an intensive analysis of specific details that are often overlooked by other research methods.

Data Processing and Analysis Methods in this study, To answer the first problem formulation with profitability analysis with the following formula:
According to [15]profitability is intended to determine the efficiency of the company by looking at the size of operating profit in relation to sales. . Mathematically, it can be written as follows:

$$ROI = \frac{\pi}{TC} \times 100\%$$

Where:
ROI (Return On Investment) = Profitability
π = profit (Rp)
TC = total cost / working capital (Rp)

The criteria used in the calculation of profitability are as follows:
1. ROI > 0 means that the duck farming business is profitable
2. ROI < 0 means that the duck farm is not profitable.
3. ROI = 0 means that the business in ducks that is cultivated is breaking even.

To answer the second formula, by calculating the risk of duck farming, it can be mathematically formulated as follows:

$$CV = \frac{V}{E}$$

Where:
CV = coefficient of variation in duck farming
V = deviation standard profit for duck farming
E = average profit for duck farming (Rp)

The higher the CV value, the greater the risk that must be borne by the farmer. The criteria used are (Hernanto, 2019).
1. CV 0.5 or L $\geq$ 0 states that duck farmers will always avoid losses.
2. CV > 0.5 or L < 0 means that there is an opportunity for losses that will be suffered by duck breeders.

4. Results and Discussion

Based on the results of this study, to analyze the profitability of ducks, we need to know in advance the production costs of duck farming. Production costs are costs incurred to grow ducks in one production to get the main product in the form of eggs to be sold and marketed so that the plant gets a profit. The production costs of ducks describe the number of production inputs and

costs incurred during the production process, consisting of fixed and variable costs with the number of ducks calculated for the production of 300 to 500 ducks owned by the sample duck breeder.

Based on the table, the duck farming business consists of various equipment, including the cage and the characteristics of the broodstock. Fixed production costs are the result of the sum of differences in equipment and differences in broodstock. Based on Table 13, it can be seen that the average fixed costs incurred by the breeder to be presented in one production, including the features of the broodstock, are Rp. 2,167,887.19, the difference for tools is Rp . 188,832.99 with a total average fixed cost of Rp. . Rp. 2,356,720,18. The duck cage is built close to the houses of residents or breeders so that farmers can more easily monitor their livestock business. The size of each cage is adjusted to the number of ducks from each breeder. Each duck breeder usually has two or more cages, which means the breeder separates the cages per 100 ducks, in addition to the separation of the cages so that each feeding and drinking ducks is regularly and evenly distributed.

In production, there are variable costs, namely costs that are used up in one time. The average variable cost of production costs in the duck farming business per breeder which includes feed costs and follow-up is Rp. 325.956.52, and fast is Rp. 19.173.91, and concentrate is 38.347. .83, Dedak of Rp. 138,052.17 Turbo of Rp. 33,554.35 and labor of Rp. 50,000.00 of the total production costs, then labor costs both outside the family are Rp. 25,000/person because labor costs are given on a wholesale basis instead of per person. work items and assisted by the workforce in the family. The average total variable cost of the duck farming business is Rp. 620,423.91. Then the production cost of ducks which describes the amount of production inputs and costs incurred during the production process with an average number of ducks as much as 383.48 is Rp. 2,977.144.10/day.

Table 3. Average Production Cost on Traditional Livestock in Buay Madang District, 2022

No	Production Cost (Rp/Production)	Average Cost (Rp/Production)
1	Fixed	
	Cost Equipment Depreciation	64.492.22
	Cost Parent Depreciation Cost	2.177.678.57
	Average Amount	2.356.720.18
2	Cost Variable	
	Cost Carpet Cost	6000.00
	Average Total Cost	6000.00
	Average Production Cost	2.248.170.78

Source: Primary Data (processed), 2022

Based on research results on, average production costs in traditional duck farming businesses are smaller, with an average fixed cost of Rp 2,177,678.57 and an average variable cost of Rp 6000.00. In traditional livestock business, farmers do not use labor because apart from saving work costs in livestock business, there is not too much work because the clay ducks in the rice fields are usually close to the cage. Breeders do this because of limited capital and land for the livestock business, and this is considered by farmers to be very reasonable, because they can benefit from the results of their ducks, even though they are only kept in makeshift cages. For equipment, also use simple equipment such as basins and others.

The profit received by the duck breeder is the difference between the total revenue and the total costs incurred. The average profit received by the duck breeder depends on the revenue and production costs incurred by the duck farmer. There are differences between intensive duck breeders and traditional duck breeders which can be seen in Table 4

Table 4. Average Profits of Intensive and Traditional Duck Livestock in Buay Madang District, 2022

Livestock	Week I (Rp/Production/day)	Week II (Rp/ Production/day)	Month I (Rp/Production/day)
Intensive			
Revenue	613,565.21	613,565.21	1,533,913.04
Production Cost	2,977,144.1	809,256.90	27,471,640.14
Profit	-195691.69	190155.46	724,656.14
Profitability			90.3%
Traditional			
Revenue	4,218.46.15	421,846.15	562,461.54
Production Costs	2,248,170.79	70,492.21	70,492.21
Profit	-1,826,324.63	351,353.94	491,969.32
Profitability			8.6%

Source: Primary Data (processed), 2022

Based on the results of research, intensive livestock business in the District Buay Madang the acceptance fee received by duck breeders is relatively small, namely Rp. 613,565.21 with a production cost of Rp. 2,977,144.1 which is quite large because the duck breeders buy ducks that are ready to lay eggs, the age range of ducks is 6 to 8 months with an average price of Rp 60,000.00 to Rp. 75,000.00/Tail. The farmers said that this was done because the cost of feed is quite expensive, so according to their calculations, they will lose from feed because the duck feed from chicks to ready to spend quite a lot of money. This causes a profit in the first week of Rp. -195691.69 which means that they have not yet made a profit. Based on the results of the research in the second week, the garden has started to make a profit even though the profit is relatively small, namely an average of Rp. 190155.46, in the first month the duck farm has started to earn an average profit of Rp 724,656.14/day with an average of 100 ducks laying 150 to 200 eggs per day with an average selling price of Rp. 20000.00/item with a profitability of 90.3% (ROI>0).

In contrast to the traditional www.vvi.tik the revenue in the first month is Rp. 562,461.54 with an average production cost of Rp. 70,492.21 means that the production cost of traditional duck farming is lower than that of intensive duck farming. So that the average profit can be Rp. 491,969.32/day with a profitability value of 8.6% which means ROI> 0. This is because traditional duck farms do not have to spend money on feed because ducks are strayed in the rice fields to find food and drink on their own. In addition, there are no labor costs in traditional duck farms because farmers prefer to do all the work items themselves and be assisted by other family members. The most difficult job, according to traditional duck farmers, is to lead the ducks out and into the cage and look for duck eggs that lay eggs around the rice fields, this is the difficulty for traditional duck farmers, ducks lay eggs in any place. In addition, the production of duck eggs is relatively smaller than that of intensive ducks. This is due to the fact that the feed and vitamins consumed by traditional ducks are different from those of intensive ducks, so the number of eggs is relatively less, i.e. an average of 80 eggs per day. However, based on the results of research, the quality of traditional duck eggs is better than intensive duck eggs; this can be seen from the difference in egg yolk color, for traditional duck eggs more than duck eggs, according to Tumanggor et al. (2017) stated that ducks reared semi-intensively by grazing in the fields during the day the color of the egg yolk produced was higher than those in intensive care, because ducks reared in paddy fields consumed a lot of carotenoids. The color of the duck egg yolk is influenced by the carotenoid content in the feed. The more carotenoid pigment content in the feed, the higher the egg yolk color will be. The low color of the egg yolks that are reared intensively is due to the low content of carotenoids in the feed.

Based on the research results, the profitability value of intensive and traditional www.intensive ducks is 90.3 for www. intensive and 8.6 for traditional farms. According to Wibowo (2010), if profitability > 0 means that the duck farming business is profitable, profitability = 0 means that the business on ducks being cultivated is BEP (break even) and profitability < 0 means that the duck farming is not profitable. And from the table above, it shows that the profitability or profit level of traditional duck farming is 90.3% and the profitability or profit level of traditional duck farming is 8.6%. This means that every Rp. 100 invested capital will get a profit of Rp. 90.34 in intensive livestock business and Rp. 8.6 in the traditional livestock business. This business is included in the profitable criteria, because it has a profitability value of more than zero. This profitability is the quotient between business profits and total costs. This is in line with Riki Suharda's research in Manik's research (2017) about the duck farming business, which also looks for a Return Of Investment (Profitability) value of 18%, and the results obtained indicate that the business is profitable.

Risk Analysis of Ducks Business in Buay Madang District, 2022

Based on the results of research, risk analysis is a technique to identify and assess factors that can endanger the success of a business, program, project, or individual in achieving goals. The relationship between risk and profit can be measured with a coefficient of variation (CV) and lower limit of profit (L). Comparison is a comparison between the risk that must be borne with

the amount of profit that will be obtained as a result and the amount of capital invested in the production process. The greater the value of variation indicates that the risk to be borne is greater than the benefits. While the lower profit limit (L) shows the lowest nominal profit value that may be received by the respondent (Hernanto, 1993 in Manik, 2017). The results of the risk analysis on intensive and traditional duck farming in Buay Madang District are as follows:

Table 5. Risk of Intensive and Traditional Duck Farming in Buay Madang District, 2022

No	Livestock	Average
1	Intensive	
	E	10502.26
	Ei	724656.14
	V2	724347.24
	V	851.08
	L	8800.09
2	CV	0,08
.	Traditional	
	E	7129.99
	Ei	491969.32
	V2	491305.39
	V	698.59
	L	11217.40
	CV	0.09

Source: Primary Data (processed), 2022

Explanation:
E: Average profit of duck farming (Rp)
Ei: Profit of ducks received by farmers (Rp)
V2: Variety
V: Standard deviation of profit of duck farming
L: Lower limit of profit duck farming business (Rp)
CV: Coefficient of variation in duck farming

After knowing the average profit of duck farming, look for variance values. The value of variance indicates that the greater the variance, the greater the deviation, so that the greater the risk faced in conducting business activities. Vice versa, the smaller the variance, the smaller the deviation so the smaller the risk faced in carrying out activities.

The variance value obtained by the duck farming business in Buay Madang District is Rp . 724,347.24 for intensive farming and Rp. 491.305.39 for www.web traditional duck. The variance value obtained by the duck farming business in Percut village is very large, so the deviation increases greatly. This large deviation shows that the level of risk faced by the duck farming business

in Percut village is very large. After knowing the variety of duck farming businesses, then look for the standard deviation using the analysis method of variance because the standard deviation (standard deviation) is the root of the variance.

Based on the mathematical calculations above, the standard deviation value obtained by the duck farming business in Buay Madang District is Rp . 851.08 for intensive livestock and Rp. 698.59 for traditional cattle. The standard deviation value shows the risk value that must be faced by the duck farming business in Buay Madang District in running a business. This value indicates that the risks that must be faced by the duck farming business in the village. Each period in the future is Rp . 851.08 for intensive farming and Rp. 698.59 for traditional cattle (assuming cateris paribus). The standard deviation value is Rp . 851.08 for intensive livestock and Rp. 698.59 for traditional livestock shows that duck farming in Percut village has risks. The magnitude of this loss is due to the large variance of the duck farming business in Buay Madang District, so the standard deviation of the duck business in Buay Madang District is small. Furthermore, the coefficient of variation in size from the ratio of the standard deviation to the resulting average profit. The smaller the value of the coefficient of variation, the smaller the risk faced, and the greater the value of variation, the greater the risk faced. Variation of coefficients used to make decisions from several alternative activities based on the risks they face.

Based on the above mathematical calculations, the lower limit of income earned from duck farming in Buay Madang District is Rp 8800.09 and 11217.40. This value indicates that this value indicates that the lowest possible risk or the lowest loss that will be faced by the livestock business in each period in the future is Rp. 11.217.40. According to (Elton and Martin, 1995) in (Aziz, 2009) the greater the CV value, the greater the risk that must be borne by the farmer. The criteria used are if the CV value is 0.5 or L 0 states that the duck breeder will always avoid losses. And if the CV value > 0.5 or L < 0, it means that there is an opportunity for the duck breeder to suffer losses. Based on the calculations obtained, the coefficient of variation of 0.08 for intensive ducks and 0.09 for traditional ducks means that the CV 0.5 or L 0 means that duck farmers will always avoid losses and the lower income limit (L) of Rp 11,217.40, this shows that duck farmers are protected from losses.

4. Conclusion

Based on the results of the research, the profitability value of www.intensive and traditional ducks is 90.3 for www.intensive and 8.6 for www.website. profitability > 0 means the duck farming business is being cultivated. Based on the calculations obtained, the coefficient of variation of 0.08 for intensive ducks and 0.09 for traditional ducks means that the CV 0.5 or L 0 means that duck farmers will always avoid losses and the lower-income limit (L) of Rp 11,217.40; this shows that duck farmers are protected from losses.

Funding:

Acknowledgments:

Conflicts of Interest:

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