FEASIBILITY ANALYSIS OF CARP (Cyprinuscarpio) FARMING AND MARKETING IN SIMALUNGUN DISTRICT

Zul Fadhly[1], Retna Astuti Kuswardani[2], Endang Sari Simanullang[3]
[1]Student, Universitas Medan Area, Sumatera Utara, Indonesia
[2,3]Lecturer, Medan Area University, Sumatera Utara, Indonesia
Correspondence e-mail:* fadhly057@gmail.com

Abstract

The aim of this research isto analyze the income of carp farmers(Cyprinus carpio)in Simalungun Regency, to analyze the feasibility of goldfish farming(Cyprinus carpio)Simalungun Regency,.The sampling technique in this research was carried out using provocative sampling with categories: privately owned land, land area 1.5-2 ha. to 20 farmers each. Financial analysis methods, feasibility analysis, and efficient analysis with analysis of business costs, revenues and profits, break even point (BEP), R/C Ratio, B/C Ratio. The research results show that: Profits in Simalunngun Regency are averageRp.8,668,415per harvest The marketing efficiency of carp farming in Simalungun Regency is an average of 9.73%, so marketing is efficient.

***Keywords**: Feasibility Analysis, Income, Goldfish*

1. INTRODUCTION

Indonesia is a country that has enormous natural resource wealth. Coastal and marine resources are very strong resources in supporting various aspects of Indonesian human life. In relation to basic welfare through food availability, the coast and sea provide extraordinary support in the form of fisheries. Development of the fisheries and marine sector as part of national development aims to ensure that every fisheries and marine activity can be carried out by the Indonesian people (Gunawan, 2004). According to 2020 data from the Ministry of Maritime Affairs and Fisheries, goldfish consumption in North Sumatra from 2020-2021 has increased. The fish consumption figure (AKI) in 2020 was 56.36 tonnes and in 2021 it was 57.17 tonnes. In North Sumatra, goldfish is a typical Batak dish, one of the preparations of which is Arsik Ikan Mas. This dish is often served at traditional Batak events and family meals. Arsik carp is often used for traditional Batak wedding parties. This Arsik dish is arranged on a large tray with white rice and vegetables on top. Then this dish is offered to the bride and groom. At family events, arsik is served as a dish for children who want to emigrate and receive an education.

With that, this fish has its own existence in North Sumatra which is a positive point for carp cultivators that this fish is a superior commodity, and promising, to be used as a cultivation business (Ministry of Maritime Affairs and Fisheries, 2020). Growth in the fisheries and marine sectors comes from the production of capture fisheries and aquaculture. So far, freshwater fish cultivation activities are mostly carried out by small farmers who do not have access to business management, markets and capital. In the context of equitable development, aquaculture activities can be used as an alternative commodity in the agro-industry sector which has good prospects if developed.One of the causes of decreased production in intensive goldfish cultivation activities is feed. If goldfish feed does not meet their needs then the fish will experience problems with the growth and survival of the goldfish. Fish feed is an important factor in supporting the success of cultivation businesses (Sanjayasari, 2010). Based on pre-survey information from the research location, goldfish farming income is very dependent on sales and costs incurred. The cheap selling price of carp and rising seed costs affect the efficiency of carp farming. In order for goldfish to be sold, the business owner must have a strategy in the marketing process, for example collaborating with collectors and retailers. Based on these problems that can be described, the author has an interest in

conducting further research on carp farming with the research title "Comparison of Feasibility Analysis of Carp (Cyprinus carpio) Farming between Deli Serdang Regency and Simalungun Regency".

2. METHOD

2.1 Research Location and Time

This research will be carried out in Sakuda Bayu Village, Bandar Siantar Village, Gunung Malela District, Simalungun Regency, North Sumatra Province. This research was carried out from December 2023 to February 2024. The location selection was carried out deliberately*(purposive)*. Gunung Malela District has the potential to develop goldfish farming.

2.2 Method of collecting data

The data collected in the research are primary data and secondary data. Primary data was obtained from farmers through interviews and using questionnaire techniques using a list of closed and open questions.

2.3 Data Analysis

The method used in this research is descriptive and quantitative analysis. which is used to determine income, business feasibility and marketing chain of carp farming.

2.4 Income Analysis

Income analysis is used to determine production costs, total receipts and income by comparing total production costs, receipts and income. The production cost formula(Soekartawi, 1995):

$$\mathbf{TC = FC+VC}$$

Information :
TC = total costs (Total Cost) (Rp/Harvest)
FC = fixed costs (Fix Cost) (Rp/Harvest)
VC = non-fixed costs (Variable Cost) (Rp/Harvest)

To calculate revenue, the following formula is used(Soekartawi, 1995):

$$\mathbf{TR= Y. Py}$$

Information :
Y = Production
Py=Price received (Rp/Kg)
To calculate income, the following formula is used(Soekartawi, 1995):

$$\boldsymbol{\pi = TR - TC}$$

information:
π : Income
TR: Total Revenue (Rp)
TC: Total Cost (RP)

2.5 Feasibility Analysis

***a. Return cost ratio*(R/C)**

*Return cost ratio*is the comparison between total revenue and total costs (Soekartawi, 2001).

$$\mathbf{R/C=TR/TC}$$

Information :
R/C = Return cost ratio
TR = Total Revenue (total receipts)

TC = Total Cost (total cost)

b. B/C Ratio

Benefit cost ratio is a comparison between the proceeds from the relevant years which have been presented and the net costs (Cahyono, 2002).

B/C = Pd/TC

Information :
B/C =*Benefit Cost Ratio*
Pd = Total Income
TC = Total Cost (total cost)

***b. Break Even Points*(BEP)**

Djarwanto (2002) believes that BEP is a break-even condition, that is, if a profit and loss calculation has been prepared for a certain period, the company does not make a profit and conversely does not suffer a loss.

• If what production is looking for to find the break-even point is:

BEP = TC/Price

• If the amount of revenue sought to find the break-even point is:

BEP = TC/Amount of Production

Information
BEP = Number of Units
FC = Fix Cost (fixed cost)
TC = Total Cost (Total Cost)
VC = Variable cost (non-fixed cost)
S = Acceptance

2.6 Marketing Analysis

Marketing chain analysis will also explain how the marketing chain operates in the research location, namely Limau Mungkur Village, Lau Barus Baru Village in STM Hilir District. Marketing margin is calculated as the difference between producer prices and final consumer prices, which is an indicator of marketing efficiency (Seftianne, 2011).

M = Pr - Pf

Information:
M: Marketing Margin
Pr: Prices at the consumer level
Pf: Price at producer level
And the marketing efficiency formula:

$$Ep = TC \text{TNP} \times 100\%$$

Information :
Ep: Marketing Efficiency (%)
TC: Total Marketing Costs (Rp/kg)
TN: Total Product Value (Rp/kg)

4. RESULTS AND DISCUSSION

4.1 Analysis of Goldfish Farming Income

Based on table 1, it can be seen that the average total cost in Simalungun Regency is that the highest cost is feed costs of IDR 18,000,000 per harvest and the lowest cost is equipment depreciation costs. For equipment depreciation costs for Simalungun Regency, the highest cost is IDR 17,630 per

harvest, which includes nets, scales, baskets, oxygen cylinders, plastic. The total fixed costs consist of land improvement costs and equipment depreciation costs. And variable costs consist of oxygen gas costs, feed costs, plastic costs, transportation costs, employee salary/harvest costs and goldfish costs.

Table 1. Average Total Cost of Carp Farming in Simalungun Regency and Simalungun Regency in 2024

Description		Average Costs for Simalungun Regency
Fixed cost		
1	Land Improvement Costs	216.133
2	Equipment depreciation costs	17,202
Variable cost		
1	Oxygen Gas Cost	150,000
2	Feed Costs	17,686,000
3	Plastic Costs	147,000
4	Transportation costs	1,465,000
5	Employee salary/harvest costs	512,750
6	Cost of goldfish seeds	10,692,500
Amount		**30,886,585**

4.2 Income

Based on table 2, it can be seen that the average farming income in Simalungun Regency has costs with the amount of production produced by goldfish farmers being 1,475 kg per harvest, amounting to IDR 9,024,492. with the highest income of Rp.10,404,333 and the lowest income is Rp.6,884,567. Average goldfish farming income.

Table 2. Average income from goldfish farming in Simalungun Regency in 2024

No	Description	Simalungun Regency carp farming income
1	Total receipts	39,555,000
2	Total cost	30,886,585
Average Amount		**8,668,415**

4.3 Eligibility

By analyzing the feasibility of farming, it can be seen whether the farming is feasible or not. Feasibility of farminggoldfish in Simalungun Regency with an R/C value of 1.31 and a B/C Ratio of 0.31. This means that farmers receive income of IDR 1.31 and IDR 0.31 for every 1 rupiah of costs incurred, it also shows that this figure is greater than 1, so in accordance with applicable regulations, carp farming in Simalungun Regency is worthy of business. The BEP calculation for production in carp farming in Simalungun Regency with a revenue of 1,113 Kg per harvest means that the break-even point for goldfish farming will be reached at a production level of 1,113 Kg or the farmer will be declared no profit or loss at the time of production at the point of 1,113 Kg. From the results of the BEP calculation, the price is obtained at Rp. 21,285, meaning that the break-even point for goldfish farming will be reached at the goldfish price level of Rp. 21,285 or farmers will be declared no profit or loss if the price of carp in Simalungun Regency reaches Rp. Rp. 21,285.

4.4 Marketing

4.1.1 Marketing Margin

Based on table 3, it can be seen that the marketing margin for farming in Simalungun Regency has a total margin of IDR 8,000 with total marketing costs of IDR.3,504 marketing profit Rp.4,495.

Table 3. Marketing Margin for Carp Farming in Deliserdang Regency in 2024

Marketing Institute	Simalungun Regency
	Rp/Kg
Farmer	
Selling price	28,000
Collecting Traders	
Purchase price	28,000
Selling price	33,000
Transportation costs	146
Labor costs	182
Oxygen Cost	87.7
Plastic Costs	100
Cost of depreciation	
Scales	132.5
Fish Tank	732
Oxygen tube	197.5
Basket	47
Water pump	817.5
The amount of costs	2,442
Marketing Margin	5,000
Profit	2,557
Retailer	
Purchase price	33,000
Selling price	36,000
Rental costs	152.4
Electricity cost	26.2
Plastic Costs	76.8
Cost of depreciation	
Scales	321.2
Fish Tank	167.8
Machete	17
Telephone	106
Water pump	194.8
The amount of costs	1,062
Marketing Margin	3,000
Profit	1937
Total Marketing Costs	3,504
Total Margin	8,000
Total Profit	4,495

4.1.2 Marketing Efficiency

Based on table 4, it can be seen that Deliserdang Regency is IDR 36,000/kg and the marketing margin is 9.73%. This value is < 50%then H1 is accepted and H0 is rejected. This means marketingSimalungun Regencyit's efficient..

Table 4. Level of Marketing Channel Efficiency in Simalungun Regency

Regency	Marketing Channels
Simalungun	(3506:36000) X 100%
	0.0973 X 100%
	9.73 %

5. Conclusion

1. Revenue from farming obtained by Simalungun Regency is IDR.41,005,000per harvest from an average pond area of 1.59 Ha. The total cost for one production harvest is Rp.31,183,066. The income obtained from the carp cultivation business is IDR.9,821,934in one production process.

2. The goldfish cultivation business in Simalungun Regency is feasible to develop based on business feasibility analysis with an R/C value of 1.31, B/C of 0.31, BEP production value of 1,113 kg and BEP price of Rp. 21,285.

6. Recommendation

The government is advised to make a policy related to developing the feasibility of goldfish business in Simalungun Regency in the form of capital assistance, seeds, feed (carp pellets), so that it is provided sustainably and evenly to all farmers and the government is also expected to provide development, empowerment and institutional development of fish cultivator groups through agricultural extension officers in an effort to increase productivityAndincome.

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