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

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Abstract

The aim of this research isto analyze the income of carp farmers(Cyprinus carpio)in Deli Serdang Regency and Simalungun Regency, to analyze the comparative feasibility of goldfish farming(Cyprinus carpio)between Deli Serdang Regency and 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, 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 Deliserdang Regency are averageRp.9,024,492 per harvest The marketing efficiency of carp farming in Deliserdang 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. 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 their growth and survival. 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 Limau Mungkur Village, Lau Barus Baru Village, STM Hilir District, Deli Serdang Regency, North Sumatra Province. This research was carried out from December 2023 to February 2024. The location selection was carried out deliberately*(purposive)*. Sinembah Tanjung Muda Hilir District (STM Hilir) 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.

A. 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 cost (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)

B. Feasibility Analysis

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

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

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)

***c. 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

C. 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)

3. RESULTS AND DISCUSSION

3.1 Analysis of Goldfish Farming Income

Based on table 1, it can be seen that the average total cost in Deliserdang Regency is lower than Simalungun Regency with the highest cost being feed costs of IDR 18,000,000 per harvest and the lowest cost being equipment depreciation costs. Simalungun Regency's equipment depreciation costs are higher than Deliserdang Regency with the highest cost being 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 Deliserdang Regency and Simalungun Regency in 2024

Description		Average Costs for Deliserdang Regency	Average Costs for Simalungun Regency
Fixed cost			
1	Land Improvement Costs	230,300	216.133
2	Equipment depreciation costs	17,175	17,202
Variable cost			
1	Oxygen Gas Cost	150,000	150,000
2	Feed Costs	17,715,500	17,686,000
3	Plastic Costs	147,500	147,000
4	Transportation costs	1,475,000	1,465,000
5	Employee salary/harvest costs	442,500	512,750
6	Cost of goldfish seeds	10,622,500	10,692,500
Amount		**30,800,508**	**30,886,585**

3.2 Income

Based on table 2, it can be seen that the average farming income in Simalungun Regency has lower costs than Deliserdang Regency with the amount of production produced by carp farmers amounting to 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. The large amount of revenue and low total costs in Deliserdang Regency make the income in Deliserdang Regency higher than Simalungun Regency. Average goldfish farming income.

Table 2. Average Goldfish Farming Income in Deliserdang Regency and Simalungun Regency in 2024

No	Description	Income from carp farming in Deliserdang Regency	Simalungun Regency carp farming income
1	Total receipts	39,825,000	39,555,000
2	Total cost	30,800,508	30,886,585
Average Amount		**9,024,492**	**8,668,415**

3.3 Eligibility

By analyzing the feasibility of farming, it can be seen whether the farming is feasible or not. Feasibility of farminggoldfish in Deliserdang Regency with an R/C value of 1.33 and a B/C Ratio of 0.32. This means that farmers receive income of Rp. 1.29 and Rp. 0.32 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 Deliserdang Regency and Simalungun Regency is feasible. to work on. The BEP calculation for production in carp farming in Deliserdang Regency with a revenue of 1,110 Kg per harvest means that the break-even point for goldfish farming capital will be reached at a production level of 1,110 Kg or the farmer will be declared no profit or loss at the time of production at the 1,110 Kg point. From the results of the BEP calculation, the price is obtained at Rp. 21,081, meaning that the break-even point for goldfish farming will be reached at the goldfish price level of Rp. 21,081 or farmers will be declared no profit no loss if the price of carp in Deliserdang Regency reaches Rp. Rp. 21,081.

3.4 Marketing

3.4.1 Marketing Margin

Based on table 3, it can be seen that the marketing margin for farming in Deliserdang Regency has a total margin of IDR 8,000 with total marketing costs of IDR.3,506 marketing profit Rp.4,493.

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

Marketing Institute	Deliserdang Regency
	Rp/Kg
Farmer	
Selling price	28,000
Collecting Traders	
Purchase price	28,000
Selling price	33,000
Transportation costs	147
Labor costs	186
Oxygen Cost	87.75
Plastic Costs	100
Cost of depreciation	
Scales	133
Fish Tank	727
Oxygen tube	197

Basket	48
Water pump	813.5
The amount of costs	2,439
Marketing Margin	5,000
Profit	2,560
Retailer	
Purchase price	33,000
Selling price	36,000
Rental costs	152.8
Electricity cost	26
Plastic Costs	77.2
Cost of depreciation	
Scales	322.2
Fish Tank	168.2
Machete	17.2
Telephone	108
Water pump	195.6
The amount of costs	1,067
Marketing Margin	3,000
Profit	1932
Total Marketing Costs	3,506
Total Margin	8,000
Total Profit	4,493

3.4.2 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 marketingDeliserdang Regencyit's efficient..

Table 4. Level of Marketing Channel Efficiency in Deliserdang Regency

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

4. CONCLUSION

1. Revenue from farming obtained by Deliserdang Regency is IDR.39,825,000per harvest from an average pond area of 1.65 Ha. The total cost for one production harvest is Rp.30,800,508. The income obtained from the business of cultivating goldfish seeds is IDR.9,024,492in one production process. Meanwhile, what Simalungun Regency obtained was IDR. 39,555,000 per harvest from an average pond area of 1.59 Ha. The total cost for one production harvest is Rp.30,886,585. The income obtained from the business of cultivating goldfish seeds is IDR.8,668,415in one production process.
2. The goldfish cultivation business in Deliserdang Regency is feasible to develop based on a business feasibility analysis with an R/C value of 1.29, a BEP Revenue value of Rp. 21,759,685 and BEP price Rp. 20,882 Meanwhile, in Deliserdang Regency it is feasible to

develop based on a business feasibility analysis with an R/C value of 1.28, a BEP Revenue value of Rp. 22,056,032 and BEP price Rp. 21,082. T Test Results (Independent Test)sig value. (2-tailed) is 741 > 0.05. So there is no significant difference.

5. Recommendation

The government is advised to make a policy related to developing the feasibility of goldfish business in Deliderdang Regency and 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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