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Business Feasibility Analysis of Shredded Layang Fish (Decapterus) at Thanko Shredded Fish Msmes

Pinky Natalia Samanta[1]*, Fenny Crista Anastasia Panjaitan[2], Gede Agus Surya Pratama[3]
Politeknik Kelautan dan Perikanan Jembrana[1,2], Universitas Warmadewa[3]
Corresponding Author: Pinky Natalia Samanta,
pinkynataliasamanta92@gmail.com

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A B S T R A C T

Shredded fish is a processed fishery product consisting of fish meat or seasoned, processed fish. This research aimed to analyse the business capital, profit, and feasibility of processing shredded Layang fish. This study was undertaken at Thanko Shredded Fish MSMEs in Jembrana, Bali from April to May 2022. The research employed observation of the process of shredded Layang from receiving raw materials to packaging and storing finished products. The data was analysis utilised cost, revenue, profit, efficiency and business risk analysis methods. The findings of this study indicated that the business of selling shredded Layang fish can generate business profits. The business has a capital of IDR. 57,501,093 and produces 2,880 packets of shredded Layang fish each year at a selling price of IDR. 25,000 per 100 grammes. An annual revenue of IDR 72,000,000 will generate a profit of Rp 14,498,907. With a selling price of IDR 25,000, the shredded Layang fish firm will Break Even Point or repay the money in less than a year if it can manufacture 2,290 units or more. The business feasibility research indicates that the shredded Layang fish business can be profitable with a payback period of less than one year.

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INTRODUCTION

Examining societal trends is one of the tactics for launching a new business (Ragimun, 2019). In recent years, the healthy lifestyle movement has led many individuals to replace red meat consumption with fish (Rahman & Reza, 2020) (Stacey et al., 2021). People are becoming increasingly concerned with family nutrition due to the more persistent stunting prevention programme based on achieving daily protein demands (Mahalia, 2022).. This boosts the economic potential for processed fish and coincides with a rise in production (Luhur, Mulatsih, & Puspitawati, 2019)(Djunaidah, 2017). Large-scale production of processed fish food must consider production volume(Setiawan, 2019), product durability(Lubis, Siregar, & Lubis, 2019), and raw materials(Wu et al., 2021)(Al, 2021). Fish is a form of perishable food (Susilo, Purwanti, Fattah, Annisa, & Shandy, 2021) (Jermsittiparsert, 2019); hence efforts must be made to diversify fish-based foods to increase their shelf life (Rostitawati, Wahyuddin, & Obie, 2019). Shredded is a product of diversification that is well-known in the community. Another side dish with a good shelf life is shredded fish(Jamil, Jasila, Technology, Program, & Ibrahimy, 2022).

Fish floss is a processed meal created by soaking, steaming, frying, and pressing the fish with oil to separate the floss (Hatta, Farikha, Fitri, Pembangunan, & Tarakan, 2020). Dispite without preservatives, this technique creates excellent food with a reasonably extended shelf life (Suriadi, Rabiyatul Jasiyah, 2022)(Sumual, Soputan, & Kawulur, 2020). The type of fish utilised impacts the flavorful quality of shredded fish [(Rosalina, Manvi, & Pramudia, 2021). Layang fish (Decapterus) have dense flesh and delicate fibres. In general, the chemical makeup of fish meat consists of 66-84% water, 15-24% protein, 0.1-22% fat, 1-3% carbs, and 0.8-2% inorganic compounds. The composition of fish meat varies significantly based on species, sex, age, season, and environmental factors at the time of capture (Syamsuddin et al., 2020). Swordfish have a relatively high nutritional value. Table 1 displays the chemical makeup of flyfish nutrients.

Table 1. Chemical composition of Layang fish meat in 100 grams of raw

Parameter	Score
Moisture content (%)	78.58
Ash content (%)	1.03
Fat (%)	1.90
Protein (%)	18.13
TVB (mg N/100%)	9.79
Ph	5.98

Source: Jusrawati, J. (2021).

Layang fish is a widely available and inexpensive fish that can be purchased year-round in traditional Balinese markets. By analysing the local marine and fisheries profile, commercial players can determine the availability of raw fish materials (Olii, Abdul Hafidz; Wonneberger, Elena; Pasisingi, 2022).

Jembrana Regency has a sea area of roughly 604,24 km^2, making it the province of Bali's most significant Saltwater fish producer. The annual sustainable potential of Saltwater Fish Resources in the waters of West Bali is 56,947 tonnes, and Layang fish is one of the catches.

Thanko Shredded Fish is one of MSMEs in Bali that shreds Layang fish using traditional methods and equipment. This straightforward process necessitates a business analysis to collect data on business feasibility and enhance management and business development. This study aimed to determine the business management of shredded Layang fish at Thanko Shredded Fish MSMEs, stages of processing, and business analysis

The research was undertaken by observing the Layang fish processing process under the production schedule. Through interviews, observations, and document searches, data was gathered. Fish processing data were discovered from receiving raw materials to weighing, weeding, steaming, shredding flesh, creating seasonings, combining spices, frying, draining, packaging, and storing (Syamsuddin et al., 2020).

Descriptive data analysis was performed on the following financial aspects:

1. Production Cost
   Has variable expenses, such as Layang cooking oil, and seasonings. The total cost is the total of the fixed expenses and variable costs. Expressed mathematically by the following formula:
   TC=VC+FC
   Description = TC: Total Cost, FC: Fix Cost, VC: Variable Cost

2. Revenue
   Contains all sales revenue generated by multiplying the quantity produced by the unit selling price (Sulistri, Yanti, Mulyani, Susanto, & Setyowati, 2019).
   TR= P x Q
   Description= TR: Total revenue, P: product price, Q: number of products produced.

   This theory of revenue is essential for sellers to consider when calculating how much output to generate and sell. According to this theory, production and sales are determined by consumer demand.

3. Income
   The net income of a business is the difference between its gross income and operating expenses. In mathematical terms, it can be expressed as follows:
   II= TR - TC
   Description: II = Business Income, TR = Total revenue, TC: Total Cost

4. Business feasibility
   a. RCR (Return Cost Ratio)
      R / C Ratio (Return Cost Ratio) is the ratio between Total Revenue and Total Production Costs or an analysis of the cost-to-revenue ratio. This comparison criterion will be satisfied suppose
      - RC ratio > 1 indicates that MSMEs businesses are profitable
      - RC ratio = 1 indicates that MSMEs businesses do not lose or are unprofitablet
      - RC ratio < 1 indicates that MSMEs businesses are unprofitable.

   b. BEP (Break Even Point)
      The objective of calculating BEP is to determine when business results hit the Break Even Point, at which the company neither makes a profit nor incurs a loss. The Break Even Point values calculated are price BEP and volume BEP.
      BEP volume = TC/(Sales Price)
      BEP Price = TC/(Total Production)
      Notes: BEP production = Break Even Point production (gramme); BEP price. = Break Even Point price (IDR/gramme); TC = Total Cost (IDR)

   c. BCR (Benefit Cost Ratio)
      The B/C ratio aims to determine the comparison between the amount of profit and the number of costs that have been incurred

RESULTS AND DISCUSSION

The investigation was conducted from April to May 2022, at Thanko Shredded Fish, which is located at Raya Pengambengan St., 08 Neighbourhood Unit, Kampung Baru, Urban-village Pengambengan, Sub-district Negara, Jembrana Regency, Province of Bali.

Process flow of shredded Layang Fish

The process of making shredded fish comprised preparing Layang fish meat, steaming, mashing fish meat, creating of shredded seasoning, mixing fish meat and seasoning, impregnation of seasoning, frying fish meat, packaging, and storing (Rasli & Sarbon, 2019).

Raw Material Receipt

A total of 720 kilogrammes of live Layang fish are received annually as raw material. The cost per kilogramme of Layang fish is IDR17,000. Received raw materials are evaluated organoleptically and categorised according to quality. Raw Layang fish is handled till the shredding operation is complete(Hatta et al., n.d.). The freshness of the fish will determine the quality of the final product. Prior to usage, materials must remain in good condition (Rosalina et al., 2021).

Washing Process

Layang fish are instantly killed, weeded, and cleaned to eliminate any remaining blood, filth, and mucous(Olii, Abdul Hafidz; Wonneberger, Elena; Pasisingi, 2022). Dead fish are rapidly cooled to temperatures below $<50^0$C to inhibit bacterial development and prevent quality deterioration (Sundari et al., 2023).

Weeding Process

While weeding, the head, gills, skin, and internal organs are removed. The fish's tail is not removed to shorten the time. Blood and entrails from weeding are quickly discarded; thus, they do not contaminate clean plants. Waste disposal aims to safeguard fish from bacteria, insects, and rodents (Khoiriah, Muhammad Zakiyul Fikri, 2022).

Steaming Process

The steaming process is carried out by adding water to the pot or boiling device up to ¼ the height of the steaming pot (±20 L). The separation of the meat and skin, as well as the slight browning of the meat, are indicators of the maturity of the fish meat. It will be difficult to remove the spines from the meat in raw fish. If cooked for too long, the protein tissue structure of the meat will be compromised, resulting in a mushy texture (Fadlan, Nurhayati, Maulina, & Rizal, 2022).

Shredding Process

After steaming the fish meat, the Layang fish meat is shredded(Jamil et al., 2022). The shredding method involves shredding fish meat into smaller pieces and removing it from its spines, which will alter the time required to fry the shredded fish. The fish meat is shredded until it resembles cotton and has a soft, homogeneous feel (Arif, Maryani, & Sarim, 2021).

Seasoning Blending Process

Spices are mashed using a blender and chopper. The spices used are shallots and white onions, sugar, chilli, salt, ginger, flavouring spices, and coriander. The spices are mashed and then added to the shredded Layang fish meat and let sit until the seasoning is absorbed into the Layang fish meat.

Frying Process

Mixtures of Layang fish meat and seasonings are cooked until dry and brown. After three times frying, the oil is replaced since its quality degrades. The water concentration of the components influences the temperature of the frying process. During the frying process, the water content decreases and is replaced by oil; in addition, it causes changes in colour, aroma, texture, and flavour, and the development of volatile compounds typically generated from aromatic compounds (Arif et al., 2021).

Drainage Process

The fried of shredded fish is placed swiftly, carefully, and hygienically in a drainer (oil reduction) to separate the fish meat from the frying oil. The shredded Layang fish is placed into a flat plastic-coated container after being drained. During the cooling process, thorns are removed, and the still-lumpy meat is broken down. Since the oil has been extracted from the shredded fish, the effect of draining it is a dry texture. The objective of draining is to lower the oil content; thus, the food does not smell rotten.

Packaging Process

The shredded material is weighed according to the package label as part of the packaging process. After being placed in the shredded packing, the package is strengthened with a heat sealer. Packaging protects and prevents product damage and prolongs its shelf life.

Storage Process

Packaged shredded fish is stored in a rodent- and insect-proof cabinet. Biogenic dust, dust-carrying bacteria in the form of mites, fungi, and bacteria, pollutes exposed products. Shredded fish has a reasonably long shelf life, surpassing six months.

Financial analysis

Comprises investment, variable, and fixed expenses associated with the production of abok Layang fish.

Table 2. Investment cost

No	Item	Quantity	Unit price (IDR)	Total price	Depreciation costs in a year
1	Long wooden table	2	350.000	700.000	140.000
2	Stainless sink	1	800.000	800.000	160.000
3	Thousand-eye stove	1	617.000	617.000	123.000
4	Stew pan	1	80.000	80.000	40.000
5	Large stainless frying pan	1	250.000	250.000	125.000
6	Cookware rack	1	200.000	200.000	100.000
7	Blender and chopper	1	807.000	807.000	269.000
8	Soap dish	1	59.000	59.000	59.000
9	Tissue holder	1	14.000	14.000	14.000
10	Apron	3	20.000	60.000	60.000
11	Plastic basin	3	15.000	45.000	45.000
12	Stainless basin	3	70.000	210.000	70.000
13	Knife	2	40.000	80.000	80.000
14	Plate	2	15.000	30.000	30.000
15	Bowl	2	10.000	20.000	20.000
16	Cutting board	1	25.000	25.000	25.000
17	Gas cylinder	2	180.000	360.000	36.000
18	Sieve	1	85.000	85.000	28.333
19	Site preparation cost	1	1.500.000	1.500.000	300.000
20	Jar	3	25.000	75.000	75.000
				6.017.000	1.799.733

Table 3. Variable costs for a year

No	Item Name	Quantity (Kg)	Unit price (IDR)	Total price (IDR)
1	Fish	720	17.000	12.240.000
2	Shallot	57.6	33.000	1.900.800
3	Garlic	57.6	23.000	1.324.800
4	Ginger (internodes)	720	500	360.000
5	Coriander	21.6	30.000	648.000
6	Sugar	89.28	12.000	1.071.360
7	Salt	6.48	5.000	32.400
8	Masako	1440	500	720.000
9	Cooking oil	360	17.000	6.120.000
10	Gas	720	6000	4.320.000
11	Packaging	2880	1.800	5.184.000
				33.921.360

Table 4. Fixed cost of production (60 kg/month)

No	Description	Per month	Per year
1	Employee salaries	800.000	9.600.000
2	Employee salaries	800.000	9.600.000
3	Premises rent	75.000	900.000
4	Electricity	100.000	1.200.000
5	Depreciation	149.978	1.799.733
6	Water	40.000	480.000
			23.579.733

Table 5. Total Production Cost

No	Item cost	(IDR)
1	Fixed cost	23.339.733
2	Variable cost	33,921.360
	Total per year	57.501.093

The selling price per package is IDR 25,000.
Revenue and Profit
With 720 kg of Layang fish material, 2,880 packages are produced with a selling price of IDR 25,000.
Thus, the income per year:
TR = P x Q
= 2.880 x 25.000
= 72.000.000

Profit per year:
X = TR – TC
= 72.000.000 – 63.518.093
= 14.498.907

Business feasibility
1. RCR (Return Cost Ratio)

Based on the results of calculations for a year, entrepreneurs get total revenue of IDR. 72,000,000 (TR) and production costs (fixed + variable) of IDR. 57,501,093 (TC).

Thus, the calculation of RCR is as follows:

RC = TR/TC
RC = 72.000.000/57.501.093
RC = 1.25

The RC ratio indicates the average volume of shredded Layang fish at Thanko Shredded Fish has been effective and profitable since the RC ratio value exceeds 1. With the stipulation that every IDR 1.00 spent will earn IDR 1,25,00 in revenue. This demonstrates that the business of selling shredded Layang fish is profitable and may be expanded.

2. BEP (Break Even Point)
   BEP volume = TC/price per package = 57.501.093: 25.000 = 2.290.44
   BEP harga = TC/Total Production = 57.501.093: 2.880 = 19.882.32
   This means that with a selling price of IDR. 25,000, - and 2,880 packages per year, Thanko Shredded Fish occurs Break Even Point when producing 2,290. This indicates that the capital has been returned in less than a year. If the average production of 240 packs per month is calculated, the entire capital will be returned within 9-10 months.

3. BCR (Benefit Cost Ratio)
   Based on the previous calculations, the BCR is obtained as follows:
   72.000.000 – 57.501.093 = 14.498.907

CONCLUSION

The sale of shredded Layang fish can offer lucrative business opportunities. With a capital of IDR 57,501,093 and a total production of 2,880 packages, a profit of IDR 14,498,907 is generated. According to the business feasibility analysis results, the shredded Layang fish business is relatively profitable, with a payback period of only nine months.

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