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**ANALYSIS OF PATIN FISH (PANGASIU HYPOPHTHALMUS) PRODUCTION
USING EARTH POND IN BERINGIN VILLAGE OF BARITO KUALA DISTRICT,
SOUTH KALIMANTAN, INDONESIA**

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ABSTRACT

Patin fish is a fisheries commodity that has great potential in Barito Kuala Regency. The advantage of patin fish (*Pangasius hypophthalmus*) as a cultivation commodity is that patin fish easily adapt to changes in the environment, and grow normally in limited ponds. The research aims to analyze the characteristics of the patin fish rearing business in Beringin Village. This research was carried out in Beringin Village, Alalak District, Barito Kuala Regency, South Kalimantan. According to data from the Food Security and Fisheries Service of Barito Kuala Regency, there are 5 groups of fish cultivators in Beringin Village, Alalak District, who carry out rearing patin fish cultivation activities. Price of patin fish in Beringin Village range between IDR 16,000/Kg to IDR 20,000/kg. Fish distribution is carried out through land and river transportation. The pattern of selling fish includes links between cultivator to trader gatherer, trader retailers and consumers.

KEY WORDS

Characteristics, patin fish, business, land pond.

Fisheries are all activities related to fish, including producing fish, including cultivation, catching and management activities aimed at meeting food and non-food needs (Saputra et al., 2022). Data from the Ministry of Maritime Affairs and Fisheries shows that there is an increase in fish consumption among Indonesian people from 2017 to 2021. Fish consumption figures in Indonesia in 2020-2021 experience enhancement amounting to 0.81 kilograms (kg) per capita in 2021. This means that per capita fish consumption increase of 1.48% compared to 2020. This show sector Indonesian fishery has potential big in scale production.

Patin fish is commodity fisheries that have potency grew up in Barito Kuala Regency. The advantages of patin fish (*Pangasius hypophthalmus*) as commodity cultivation is a patin fish easy adapt to change environment, and grow normally in pool limited. According to Bidayani (2007) patin fish is also included a group of freshwater fish that does not Lots demand water requirements as a living medium. Based on properties possessed by patin fish that, then fish cultivators in Beringin Village Subdistrict Alalak Barito Kuala Regency cultivates this fish with use pool land. Fish feed as component cost production highest in something business cultivation price Keep going increases, resulting in profits obtained fish farmers are increasing a little, so required exists effort For push cost production among others, with make own fish food, using material available standards in a way local, using machine assembled fish feed with technology appropriate use (Symbolon, 2015). According to Saputra et al (2022), a business established to fulfill need economical its founder, however thereby business it also has risk experience loss. Not far different with other businesses business fish farming patin fish requires sufficient capital big ones are also followed with big risk too.

In Banyan Village Subdistrict Alalak moment This There are 5 groups running fish farmers' business cultivation enlargement patin fish. Formed group fish cultivators (POKDAKAN) based on Ministerial Decree Number KEP.14/MEN/2012 concerning General Guidelines for Growth and Development Institutional Main Actors in Fisheries. Land area used For cultivation patin fish rearing covering an area of 16,717 m2 with amount 78 units The pool is owned by 5 groups from 50 fish farmers. Initially business patin fish rearing This



done by one group course, will but Because business the own opportunity business which Enough tempting and supported with regional potential, namely near with the Barito Watershed (DAS). patin fish rearing business in Beringin Village This start develop from one group into 5 groups' cultivator. There are groups this is very helpful deep fish cultivators face problems experienced start from cultivation, enlargement, management feed, up to marketing moment harvest (Poernomo et al, 2015)

Study aimed to analyze characteristics of patin fish business in Beringin Village.

MATERIALS AND METHODS OF RESEARCH

This study carried out in Beringin Village Subdistrict Alalak Barito Kuala Regency, South Kalimantan. According to data from the Food Security and Fisheries Service Barito Kuala Regency total group fish cultivators in Beringin Village Subdistrict Alalak A total of 5 groups did it activity business cultivation patin fish. From 5 groups the amount in total there are 50 patin fish cultivators.

RESULTS AND DISCUSSION

Research uses data sourced from primary data and secondary data. Primary data was collected directly giving a questionnaire/list of questions to 21 respondents in the land pond fish cultivation business. The characteristics of the patin fish cultivation business were analyzed from 2020 to 2022. Research related to patin fish cultivation information is good in the form of feed, fish seeds, land ponds and in terms of post-harvest patin fish marketing. The earthen pond business is one of the businesses in the agribusiness sector, before conducting a business feasibility analysis, aspects related to the earthen pond business need to be discussed. The aspects that are discussed include technical, market, financial and economic.

Technical analysis includes analysis of input and output in the form of goods and services that are needed and produced in a business. The land pond business requires the availability of cultivation land, namely in the form of land that has been made into a pond, fish seeds to be cultivated, fish food, labor and fish harvest.

Earthen ponds are a method of fish cultivation in which fish are cultivated in ponds made of earth. The method of cultivating fish in earthen ponds is relatively inexpensive and can be applied in various locations. In patin fish cultivation, the earth pond method is also often used. An earthen pool is a pool built from natural materials, such as clay or loam, which form the walls and bottom of the pool. Earthen ponds for cultivating patin fish have varying sizes and shapes depending on the farmer's needs and location conditions. However, on average, ponds have a minimum depth of 1.5 to 2 meters to ensure stable water temperature and protection against predators. Before filling the pool with water, the area where it will be used should be cleaned well to remove any debris or vegetation. After that, the pool is filled with clean water until it is full. Water quality regulation is a key factor in cultivating patin fish in earthen ponds. Water must be maintained in temperature, pH, oxygen and quality so that fish can grow well. Water changes and filtration may be necessary if the water quality deteriorates, in ground pools, namely in the following figure:

A very important part of the production facilities for an earthen pond business is fish seeds. In the patin fish cultivation business in Beringin Village, Barito Kuala Regency, the fish cultivated are mostly patin fish. The seeds used are seeds measuring 4-6 cm, 6-8 cm which come from general cultivators in Bincau Village, Banjar Regency and the price also varies from IDR 200.00 to IDR. 350.00 per head, stocking density of 2,000 seeds per earth pond unit. Cultivators admit that sometimes the quality of patin fish seeds does not grow quickly and growth is also slow. In addition, the number of seeds purchased does not match the amount paid. This affects the production costs and production time per production period for patin fish farming in earthen ponds.



Table 1 – Costs Maximum and Minimum Patin Fish Seeds

No	Year	Maximum (Rp)	Minimum (Rp)	Average Value (Rp)	Percentage (%)
1	2020	Rp. 2,100,000	Rp. 200,000	Rp. 960,000	34.39
2	2021	Rp. 2,100,000	Rp. 200,000	Rp. 955,238	34.22
3	2022	Rp. 2,100,000	Rp. 200,000	Rp. 876,190	31.39

The type of feed used to feed fish cultivated in earthen ponds is the type of feed produced by the cultivator himself. Cultivators who produce feed obtain feed machines from government assistance, but cultivators who do not produce feed purchase feed from cultivators who produce feed. Some cultivators store the feed produced in warehouses, inside the house and in the yard and then cover it using a tarpaulin. The price of processed feed is Rp. 13,000/kg. The size of feed given to fish varies depending on the age of the fish. Feeding when rearing patin fish is done 3 times a day, namely morning, afternoon and evening. The size of the feed given from patin fish fry to harvest varies, namely at the fry stage the patin fish are given food with a diameter of approximately 1 mm, then when they approach the age of enlargement they are given food of 3 mm to 5 mm size.

Table 2 – Costs Maximum and Minimum Patin fish Feed

No	Year	Maximum (Rp)	Minimum (Rp)	Average Value (Rp)	Percentage (%)
1	2020	Rp. 43,333,333	Rp. 2,497,800	Rp. 12,258,459	35.39
2	2021	Rp. 34,666,667	Rp. 2,497,800	Rp. 11,914,511	34.40
3	2022	Rp. 26,000,000	Rp. 2,497,800	Rp. 10,461,975	30.21

The harvest of patin fish is carried out until they are aged for four months and the harvest is carried out in the morning and the fish will be removed or weighed in the evening. The fish to be harvested will be fasted for one day with the aim that during transportation the fish do not produce a lot of dirt which can cause poison. Fish harvesting is done using a hapa or net to make catching fish easier, then weighing. Patin fish that have stronger physical conditions are distributed by placing them in plastic filled with clean water and oxygen.

Table 3 – Costs Maximum and Minimum Harvest of Patin Fish

No	Year	Maximum (Rp)	Minimum (Rp)	Average Value (Rp)	Percentage (%)
1	2020	Rp. 910,000	Rp. 70,000	Rp. 303,333	35.27
2	2021	Rp. 560,000	Rp. 70,000	Rp. 286,667	33.33
3	2022	Rp. 560,000	Rp. 70,000	Rp. 270,000	31.40

The market aspect analyzes the demand and supply for the land pool business in Beringin Village, Barito Kuala Regency. It is hoped that the earth pond business activity in Beringin Village, Barito Kuala Regency, will be able to play a role in meeting the demand for fish in Beringin Village, Barito Kuala Regency and even South Kalimantan Province. The demand for fish in Beringin Village, Barito Kuala Regency is quite large, patin fish is one of the fish that is popular with the community so the demand for this fish is quite high. However, along with the high demand for patin fish, it is still not matched by the difficulty in producing patin fish. Therefore, the existence of this land pond business is very helpful for the government in meeting the fish needs of the community.

According to Kotler (2002), marketing is a managerial and social process where individuals and groups obtain the goods and services they need and want through creating, offering, and exchanging value with other parties. According to McCarthy (as quoted by Kotler, 2002: 18), marketing tools are divided into four major groups known as the four Ps (4P) in marketing, namely product, price, place and distribution, as well as promotions.

Patin fish products sold must be adapted to market needs in terms of size, shape and quality. This is done so that market demand is met and can increase patin fish sales. The size of patin fish sold ranges from 500 grams > 1 kg per fish, which is the size generally requested by consumers. In addition, to increase the sustainability of patin fish sales, it is necessary to regulate stocking patterns so that patin fish production can meet consistent



market demand. According to Adnan et al (2019) the form of patin fish sold can be live fish or fresh fish according to market demand. This is important to maintain the quality of the fish so that it remains fresh and of good quality when it reaches the hands of consumers. In meeting market demand, patin fish producers need to pay attention to the quality of the fish, starting from the aspects of health, cleanliness, and conformity with applicable food safety standards.

Marketing, product price is an important component that needs to be considered in order to compete with similar products in the market. The price offered to consumers must be in accordance with the quality and value produced by the product. This will affect the competitiveness of the product in the market. In the case of patin fish, the price offered at the farmer level can influence the selling price of the product on the market (Adnan et al, 2019).

Based on research analysis, the price of patin fish is Rp. 16,000/kg up to Rp. 20,000/kg, it was found that the price of patin fish at the cultivator level was based on an agreement between cultivators and collectors so that it could be bought and sold outside the area at a price that was of course different from the purchase price. However, this does not lead to a decrease in product competitiveness, because lower prices can make products more competitive in the market. Determining the price of patin fish products, you also need to pay attention to other factors such as production costs, profit margins and market demand. In this condition, producers need to carry out appropriate calculations and analysis so that the prices offered are not too high so they can compete in the market.

The distribution of patin fish for the people of Beringin Village, Barito Kuala Regency uses land transportation, namely cars using plastic packing which is equipped with oxygen with the aim that the fish will remain alive until they reach the distributor or collecting trader. The selling pattern of patin fish starts from the cultivator then to distributors or collecting traders who will be distributed again to retailers and then from retailers to final consumers. The retailers in question are fish traders at the Marabahan fish market, as well as weekly fish markets in the village. Each fish farming location has fish available in the nearest local market and maintains the quality of patin fish in the process. Cultivators market fish only to meet the needs of the local market near the cultivators' location. Final consumers here include restaurants in Marabahan, and household communities around the cultivator's location. The pattern of distribution of patin fish is as follows:

This distribution pattern is in line with Kotler and Armstrong's (2018) explanation that distribution is an activity that manages the flow of goods and services from producers to consumers. In this case, the pattern of distribution of patin fish in Beringin Village, Barito Kuala Regency prioritizes distribution from the cultivator to the final consumer. This also refers to Kotler and Keller's (2016) theory that distribution is one of the key factors in marketing that influences consumer decisions to buy products.

Apart from that, the distribution pattern of patin fish in Beringin Village, Barito Kuala Regency also shows that there is cooperation between actors in order to meet the needs of the local market and increase the income of patin fish cultivators. This is in line with the explanation by Mulyana and Khairani (2018) that cooperation between actors in distribution channels can increase distribution effectiveness and efficiency, as well as increase profits for all actors in distribution channels.

Analysis of the financial aspects requires analysis of the cost components and benefit components of the net land pool business for the community of Beringin Village, Barito Kuala Regency. These cost and benefit components are used to estimate the profit value of patin fish cultivation businesses and the feasibility of patin fish cultivation businesses in land ponds. For the business of cultivating patin fish in earthen ponds in Beringin Village, Barito Kuala Regency, an analysis of financial aspects is required to determine the feasibility and profits of this business. This analysis includes cost components and benefit components. Cost components include production costs such as feed costs, earth pond construction costs, maintenance costs, operational costs and labor costs. Meanwhile, the benefit component includes income obtained from the sale of patin fish, both directly from the sale proceeds and indirectly from the reduction in costs that must be incurred to buy fish on the market.



In research conducted by Sofyan (2019), the results of an analysis of the financial aspects of the patin fish business were obtained. The production costs of the patin fish business reach Rp. 20,846,025.00 per cultivation cycle for 5 months, with detailed feed costs of Rp. 10,719,200.00 the cost of building an earthen pool is Rp. 5,600,000.00 maintenance costs Rp. 1,042,500.00 operational costs of Rp. 902,000.00 and labor costs of Rp. 2,582,325.00 Meanwhile, the income obtained from selling patin fish for 5 months was Rp. 37,035,000.00. Thus, the profits obtained from the patin fish business reached Rp. 16,188,975.00. In this analysis, it is also stated that the patin fish business has a fairly high net profit value, namely 77.67% of the total production costs.

Based on the results of the analysis of the financial aspects, it can be concluded that the patin fish business in Beringin Village, Barito Kuala Regency is quite profitable and feasible. This analysis can also be used as a reference in decision making for the development and expansion of the patin fish business in the future.

The results of research analyzing the feasibility and sensitivity of land pond patin fish cultivation in Beringin Village, Barito Kuala Regency, sample collection was carried out on 21 respondents. Costs for ground pool business activities include operational costs and fixed costs. The results of the analysis of profits from the production of patin fish land ponds from 2020 to 2022 in Beringin Village, Barito Kuala Regency are in the following table:

Table 4 – Analysis Profit Maximum and Minimum Patin Fish

Description	Year	Average	Maximum	Minimum
Reception	2020	IDR 31,224,000	IDR 93,924,000	Rp. 7,200,000
	2021	Rp. 29,721,429	IDR 59,310,000	Rp. 7,560,000
	2022	Rp. 28,261,714	Rp. 54,000,000	Rp. 8,100,000
Cost	2020	Rp. 17,064,983	IDR 51,700,000	IDR 4,031,667
	2021	Rp. 16,699,606	Rp. 42,283,333	4031666,667
	2022	Rp. 15,151,356	33076666.67	4031666,667
Profit	2020	Rp. 14,159,017	IDR 42,224,000	Rp. 3,168,333
	2021	Rp. 13,021,823	Rp. 17,026,667	IDR 3,528,333
	2022	Rp. 13,110,359	Rp. 20,923,333	IDR 4,068,333

Based on the results of the profit analysis obtained from 21 research respondents, then averaging them, the net gain in profits from rearing patin fish in earthen ponds is in 2020 IDR. 14,462,350 per year, in 2021 Rp. 13,308,489,- per year and in 2022 Rp. 13,380,359,- per year. The profits obtained by cultivators are still above the UMP for South Kalimantan Province, namely Rp. 3,755,761,- per month, so that the results of this business are still able to meet the needs of the cultivator's family. One of the obstacles for patin fish farmers in land ponds is that the patin fish seeds that have been stocked die. Cultivated patin fish die when they are still fry because they cannot adapt to the new environment. Apart from that, patin fish seeds that have been sown into earthen ponds die due to stress during transportation from their place of origin to new cultivation containers. Another cause is also caused by water quality that does not meet the patin fish's requirements for survival. Factors that can influence water quality include inappropriate temperatures, low oxygen levels, unstable pH levels, high ammonia levels, water turbidity, and contamination by chemicals or pollutants. This condition is also influenced by erratic weather, which causes fluctuations in water quality in the rivers of Banjarmasin City

According to Triyanti (2015), analysis of the profits of patin fish farming involves factors such as production costs, selling prices, market demand, competition and other aspects that influence business profitability. Based on research by Deby et al (2018), the average production costs incurred in the patin fish rearing business with a stocking density of 4500-12750 fish/pond and the output in the patin fish rearing business is the amount of production in each pond of 1507-4271 Kg. From the pool, profits were obtained amounting to IDR 23,628,850,-/harvest up to IDR 67,123,050,-/harvest with total revenue received amounting to IDR 27,126,000,-/harvest up to IDR 76,878,000,-/harvest and large profits received amounting to IDR 3,497,150,-/harvest up to IDR 9,754,950,-/harvest and patin fish rearing business with RCR value>1, with FRR value>6.02% and PPC value between 7.56-8.36 per



period or \pm 7 years 8 months. According to Roslina (2023), the profit analysis obtained from 17 research respondents was then averaged so that the net gain in rearing patin fish in floating net cages in Banjarmasin City was IDR. 4,030,833,-per production.

The cost efficiency of cultivating patin fish in earthen ponds is carried out through R/C ratio analysis. Where the R/C ratio is a comparison between average total revenue and average total costs. The greater the R/C ratio, the greater the profits obtained by the farmer. After carrying out the R/C ratio analysis, analysis is needed to determine the difference in cost efficiency. The results of the R/C ratio analysis are in the following table:

Table 5 – Maximum and Minimum R/C of Patin Fish

Description	Year	Maximum	Minimum	Average
Reception	2020	IDR 93,924,000	Rp. 7,200,000	IDR 31,224,000
	2021	IDR 59,310,000	Rp. 7,560,000	Rp. 29,721,429
	2022	Rp. 54,000,000	Rp. 8,100,000	Rp. 28,261,714
Cost	2020	IDR 51,700,000	IDR 4,031,667	Rp. 17,064,983
	2021	Rp. 42,283,333	IDR 4,031,667	Rp. 16,699,606
	2022	IDR 33,076,667	IDR 4,031,667	Rp. 15,151,356
R/C Ratio	2020	1.82	1.79	1.83
	2021	1.40	1.88	1.78
	2022	1.63	2.01	1.87

The average R/C ratio for patin fish farming businesses in earthen ponds is 1.91, which means that patin fish farming businesses are efficient in using business costs, because every 1 currency unit is IDR 1.91. According to Yuni et al (2014), the average income from patin fish cultivation is IDR 61,317,111.00/ha/cycle, meanwhile. This shows that traditional patin fish farming is efficient with a significance value of 0.916.

CONCLUSION

Analysis of the business of rearing patin fish (*Pangasius hypophthalmus*) in earthen ponds in Beringin Village, Alalak District, Barito Kuala Regency, South Kalimantan Province, the results of which are the profits of the business of rearing patin fish in earthen ponds in Beringin Village, Alalak District, Barito Kuala Regency, the profit results that have been obtained from 21 respondents, the average in 2020 was IDR. 14,462,350 per year, in 2021 Rp. 13,308,489,- per year and in 2022 Rp. 13,380,359,- per year. The average R/C ratio for patin fish farming businesses in earthen ponds is 1.91, which means that patin fish farming businesses are efficient in using business costs, because every 1 currency unit is IDR 1.91.

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