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STUDY OF RAW MATERIAL REQUIREMENTS FOR THE MICRO SCALE FISH PROCESSING INDUSTRY IN MOJOKERTO REGENCY

Studi Kebutuhan Bahan Baku Industri Pengolahan Ikan Skala Mikro di Kabupaten Mojokerto

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ABSTRACT

The availability of raw materials in an industry is very important to prevent supply shortages, so that business continuity can be guaranteed. This condition can also affect the fixed costs that must be borne, especially if the production process stops. The aim of this research is to determine the amount of raw materials needed by the micro-scale fish processing industry in Mojokerto Regency. The research method used survey and interview methods with 18 respondents in the micro-scale fish processing industries in Mojokerto Regency. The research was conducted for 30 days and data analysis used quantitative descriptive. The results of the research show that the dominant fish used as raw material for fish processing is mackerel. The highest amount of raw material needed for mackerel fish occurred in 2022 at 753,864 kg and the highest amount of stock shortage reached 53,668 kg in 2020. The wader fish commodity has been fulfilled every year with the highest amount of raw material needed at 33,348 kg in 2023, while the catfish commodity has also been fulfilled. every year with the highest amount of raw material requirements in 2023 amounting to 27,421 kg.

Keywords: Fish Processing Industry, Micro Scale, Raw Material Requirements

ABSTRAK

Ketersediaan bahan baku pada suatu industri krusial sekali untuk mencegah kekurangan pasokan, sehingga kelangsungan usaha dapat tetap terjamin. Kondisi ini juga dapat mempengaruhi biaya tetap yang harus ditanggung, terutama jika proses produksi terhenti. Tujuan penelitian ini ialah untuk mengetahui jumlah kebutuhan bahan baku yang diperlukan oleh industri pengolahan ikan skala mikro di Kabupaten Mojokerto. Metode penelitian memakai metode survei dan wawancara pada jumlah responden sebanyak 18 industri pengolahan ikan skala mikro di Kabupaten Mojokerto. Penelitian dilaksanakan selama 30 hari dan analisis data memakai deskriptif kuantitatif. Hasil penelitian memperlihatkan terkait ikan dominan yang dipakai bahan baku pengolahan ikan ialah ikan tenggiri. Jumlah kebutuhan bahan baku ikan tenggiri tertinggi terjadi pada tahun 2022 sebesar 753.864 kg dan jumlah kekurangan stok tertinggi mencapai 53.668 kg pada tahun 2020. Komoditas ikan wader telah

terpenuhi tiap tahun pada jumlah kebutuhan bahan baku tertinggi 33.348 kg pada tahun 2023, sedangkan komoditas ikan lele juga terpenuhi tiap tahun pada jumlah kebutuhan bahan baku tertinggi pada tahun 2023 sebesar 27.421 kg.

Kata kunci: Industri Pengolahan Ikan, Kebutuhan Bahan Baku, Skala Mikro

INTRODUCTION

Indonesia is an archipelagic country with around 13,000 islands, some of which are still uninhabited and do not yet have names (Agus, 2019). Indonesia also has the third longest coastline in the world, which is 99,083 kilometers with a total water area of 65% (Gerungan, 2016). Indonesia has a potential fishery resource of 26,606,000 ha that can be explored and utilized. The enormous potential of fishery resources in Indonesia must receive special attention so that they are utilized properly (Anugrah & Arindra, 2021).

Fish is an important food source for all ages, from children to adults. The nutritional content of freshwater fish is comparable to that of seawater fish. According to Munthe et al. (2016), consuming fish not only strengthens the heart muscle, but also increases brain intelligence and helps reduce triglyceride levels. The protein, fat, and vitamin content in fish is very beneficial for toddler growth and makes a significant contribution to overall health. The nutritional content of fish consists of 1%-3% carbohydrates, 15%-24% protein, 66%-84% water, 0.1%-22% fat, and 0.8%-2% inorganic compounds (Ciptawati et al., 2021).

Mojokerto Regency has quite large processing potential in the fisheries sector. This is supported by data from the Mojokerto Regency Food and Fisheries Service which shows the volume of processed fishery product production in 2023 of 992,589 kilograms. According to Ruliza et al. (2018), the process of processing fishery products aims to increase the economic value of fishery products and plays a role in preserving fish, which are susceptible to damage and rot. Various processing techniques that can be used include salting, smoking, pickling, and making processed foods, as well as other methods.

Based on data from the Mojokerto Regency BAPPEDA in 2021, the fish processing industry that is developing is in accordance with the 2021-2026 Mojokerto Regency RPJMD, namely '"Realizing an Advanced, Fair and Prosperous Mojokerto Regency through Strengthening Infrastructure and Improving the Quality of Human Resources"' which is described through the following 4 missions (1) Realizing healthy, intelligent, skilled, and productive human resources based on the values of faith and piety; (2) Building economic independence with a people's dimension; (3) Realizing integrated, accountable, clean, transparent governance; (4) Equalizing and expanding infrastructure development in all sectors to encourage economic, social, cultural growth and environmental preservation.

The development of the fish processing industry in Mojokerto Regency is greatly influenced by community participation in running businesses in this sector. Referring to data from the East Java Provincial Maritime Affairs and Fisheries Service for the 2023 period, there are 105 micro-scale fish processing industry units. Availability of raw materials is an important factor to prevent supply shortages that can threaten business continuity. Lack of raw materials can have an impact on increasing fixed costs if production stops (Sumule & Wisman, 2019). Therefore, an analysis of raw material requirements is needed to determine the amount needed in the micro-scale fish processing industry in Mojokerto Regency.

RESEARCH METHOD

Location and Time of Research

This research was conducted in Mojokerto Regency as shown in Figure 1 in January 2024 for 30 days and took place in 18 Micro-Scale Fish Processing Units in Mojokerto Regency.

Types and Methods of Data Collection

This study utilizes important information collected through direct review. The techniques used in this study are direct review strategies and organized field interviews. The respondent examination strategy is assisted by a nonprobability sampling procedure, a research method that does not provide equal opportunities for the selected population. This method is used due to limited time, cost and access (Fachreza et al., 2024), in particular the test aims at 18 respondents from the micro-scale fish processing industry. The data needed are the types and quantities of raw materials produced by the micro-scale Fish Handling Unit in Mojokerto Regency.

To obtain primary data, namely as a direct data source from related parties, as well as secondary data, respondents were addressed to the owners or managers of 18 micro-scale Fish Processing Units with details of 10 mackerel fish cracker processing units, 5 wader fish processing units, 2 fish floss processing units, and 1 fish ball processing unit. In addition, secondary data was obtained from the Food and Fisheries Service of Mojokerto Regency and the Maritime Affairs and Fisheries Service of East Java Province.

Analysis Method

Examination of raw material requirements information for the fish handling industry is carried out quantitatively on the type and quantity of fish. The quantitative analysis method has numbers, types of calculations and quantities. In addition, this method is carried out through a numerical approach through the stages of data collection, estimation and presentation of data processing results (Dhewy, 2022). This method is used to see the adequacy of the stock expected by the business by analyzing or describing the information that has been collected and handled by utilizing data analysis in the form of tables.

RESULT

Production and Raw Material Needs for Micro-Scale Fish Processing Industry

Referring to data from the East Java Provincial Maritime Affairs and Fisheries Service, the number of small-scale fish processing businesses in 2023 in Mojokerto Regency is 105 units. The results of the study show a number of types of fish that are widely used as raw materials for the fish processing industry, such as mackerel, catfish, and wader fish. One of the crucial things in the fish processing industry is the provision of fish raw materials. The fish processing industry, especially in Mojokerto Regency, will continue to operate as long as raw materials are available. Based on the results of meetings with related small-scale business actors, information was obtained about the raw material needs of each industry which is shown in Table 1. Table 2 shows the production capacity and raw material needs for mackerel. Then the production capacity and raw material needs for wader fish can be seen in Table 3 and Table 4 is the production capacity and raw material needs for catfish.

Table 1. Total Industrial Raw Material Needs Based on Processed

No.	Type of Processing	Types of Fish	Number of Industries	Amount Use of Raw Materials
1.	Fish crackers	Mackerel	10	63,650 kg
2.	Crispy wader	Wader fish	5	48,230 kg
3.	Fish floss	Catfish	2	730 kg
4.	Fish meatballs	Mackerel	1	380 kg

Table 2. Capacity Production and Raw Material Requirements for Mackerel Fish

No.	Year	Production Data Amount	Raw Material Quantity	Difference	Amount of Production Data Available
1.	2019	724,684 kg	708,566 kg	- 16,118	- 2.2%
2.	2020	754,013 kg	700.345 kg	- 53,668	- 7.1%
3.	2021	740,955 kg	700,869 kg	- 40,086	- 5.4%
4.	2022	773,240 kg	753,864 kg	- 19,376	- 2.5%
5.	2023	792,589 kg	749,231 kg	- 43,358	- 5.5%

Source : Department of Food and Fisheries Mojokerto Regency , 2024

Table 3. Capacity Production and Raw Material Requirements for Wader Fish

No.	Year	Production Data Amount	Raw Material Quantity	Difference	Amount of Production Data Available
1.	2019	20,380 kg	30,279 kg	9,899	48.6%
2.	2020	19,543 kg	29,476 kg	9.933	50.8%
3.	2021	22,651 kg	32,980 kg	10,326	45.6%
4.	2022	24,459 kg	32,165 kg	7,706	31.5%
5.	2023	25,287 kg	33,348 kg	8,061	31.9%

Source : Department of Food and Fisheries Mojokerto Regency , 2024

Table 4. Capacity Production and Raw Material Requirements for Catfish

No.	Year	Production Data Amount	Raw Material Quantity	Difference	Amount of Production Data Available
1.	2019	12,137 kg	23,218 kg	11,081	91.2%
2.	2020	12,259 kg	24,537 kg	12,278	100.2%
3.	2021	12,276 kg	24,682 kg	12,406	101.1%
4.	2022	12,318 kg	25,799 kg	13,481	109.4%
5.	2023	12,324 kg	27,421 kg	15,097	122.5%

Source : Department of Food and Fisheries Mojokerto Regency , 2024

DISCUSSION

Based on the survey results, Table 1 shows that there are 18 micro-scale industrial units in Mojokerto Regency, where the majority of the population processes fish on mackerel which is applied to fish crackers. This is in line with the research of Paramitha et al. (2020), that mackerel fish cracker producers have grown rapidly in Mojokerto Regency due to high demand. Mackerel has a high protein content of around 21.4 grams / 100 grams (Damayanty, 2023) so that it is widely used by the people of Mojokerto Regency. The protein content in catfish is 17.7% (Primawestri et al., 2023). In addition, catfish also contains unsaturated fatty acids which function to maintain heart health (Supenti et al., 2022), while the protein content of wader fish is around 14.8 grams/100 grams (Rahmawati & Titin, 2020). The next data that is widely processed by the fish processing industry in Mojokerto Regency is crispy wader made from wader fish. In addition, there are also types of processed fish floss made from catfish, and meatballs made from milkfish.

Table 2 can be seen that the need for raw materials for mackerel for the 2019-2023 period has not been met, where the amount of raw materials increases and decreases each year depending on consumer demand. Mackerel is a marine fish species that is the target of

fishermen's catch throughout the Indo-West Pacific region (Jumsurizal et al., 2014). Mojokerto Regency is a regency that does not have a sea area. Therefore, Mojokerto Regency lacks the availability of raw materials for mackerel. To solve this problem, the Fish Processing Unit obtains raw materials for mackerel from regencies that have marine resources such as Sidoarjo Regency and Lamongan Regency. Determination of the amount of raw materials is based on data on the availability of mackerel at producers and fish markets.

Table 3 can be seen that the raw material needs for wader fish for the 2019-2023 period are sufficient, where the amount of raw materials each year depends on consumer demand. The decrease in the percentage of available production was due to the Covid-19 virus in the 2020-2021 period, then in 2022 there was also a decrease due to the high amount of production data. According to Hernikawati (2022), the number of sales from MSMEs showed a decrease or decreased by 53.76% throughout the pandemic. This decrease in sales could be due to the decrease in purchasing power of the local community due to the Large-Scale Social Restrictions so that there was no economic movement. In addition to industrial needs, the amount of production available up to 50.8% in 2020 will be sold to retail traders in the market, as well as surrounding restaurants.

Table 4 can be seen that the need for catfish raw materials has been met. The amount of production data increases every year along with the increase in the amount of raw materials. According to the results of the interviews that have been carried out, it is known that catfish raw materials are available in abundance in Mojokerto Regency. This is supported by Widyasari's statement (2015), pond fish, one of which is catfish, has the largest contribution to the fisheries sector compared to river fish with a percentage of 98% while river fish are only 2%. Abundant raw materials reaching 122.5% in 2023 will be sold by farmers to retailers, markets, or sold outside the city.

CONCLUSION

The results of the study above can be concluded that the types of raw materials for the fish processing industry that are widely used in Mojokerto Regency are mackerel, wader fish, and catfish. Several types of fish can be processed into fish crackers, crispy wader, fish floss and fish meatballs. The amount of raw material requirements for the three fish commodities varies from year to year, where the highest amount of raw material requirements for mackerel occurred in the 2022 period of 753,864 kg and the highest amount of stock shortages reached 53,668 kg in 2020. The wader fish commodity has been met every year at the highest amount of raw material requirements of 33,348 kg in 2023, while the catfish commodity has also been met every year at the highest amount of raw material requirements in 2023 of 27,421 kg.

Based on this study, there needs to be a sustainable government contribution to monitor the availability of fish raw materials in Mojokerto Regency. If the need for raw materials cannot be met evenly, the government can cooperate with districts that have marine resources such as Lamongan Regency, Sidoarjo Regency and Pasuruan Regency.

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