A VALUE CHAIN ANALYSIS ON MILKFISH COMMODITY IN SIDOARJO, EAST JAVA

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Abstract: This study is aimed to describe the mapping of milkfish especially processed milkfish in Sidoarjo and to determine the improvement of the processed milkfish value chain. The identification of actors, activities, profits and margins obtained by each actor is presented along with a value chain improvement strategy. The research method used is a value chain analysis. The research findings showed that the actors involved along the chain were cultivators, borg, collectors, processors and consumers. Processor B obtained the largest margin of IDR 55,000 of 51.4%. The second largest margin obtained by processor A is IDR 32,000 or 28.6%. The cultivators get a margin of IDR 15,000 or 14.02%. The collectors get a margin of IDR 2,000 or 1.87%. Meanwhile, borg received a margin of IDR 3,000 or 2.8%. The difference between borg and collectors’ margin is not too far away because the selling price of milkfish has been determined by the market and the fish is still fresh and undamaged.

Keywords: milkfish, upgrading, value chains analysis

INTRODUCTION

The potential aquaculture sub-sector is seen from the total area of ponds in Sidoarjo Regency that is 15,539 hectares or 21.9% of total area of Sidoarjo Regency. The fishery sub-sector has advantages over the other areas which have the same commodity. The production result of fishery sub-sector in Sidoarjo Regency contributed 53% to the agriculture sector GRDP in 2013 (Shofa and Ardy, 2015).

According to the Directorate General of Agriculture, Ministry of Marine Affairs and Fisheries (2016), East Java Province has the highest milkfish production in Indonesia. The production of milkfish in Sidoarjo Regency reached 33,863.7 tons after Gresik Regency was in the first place with the total production of 67,998.25 tons.

Fishery products which are fresh and perishable must be distributed immediately. Many cultivators in Indonesia sell fishery products in a fresh condition, so that the selling price of the product is low and it is difficult for them to get big profits and their welfare is low as well. If fishery products are processed further it can cause other problems. Problems that arise include the quality of processed fish, especially milkfish that can affect a shelf life, cleanliness, sanitation, simple equipment, marketing, limited human resources and the unavailability of appropriate technology.

The research finding by Marisa et al., (2017), explained that fish processing industry actors need to implement a good cost management and be able to reduce or eliminate activities that have no added value in a fish processing. Fish processing industry actors must also be able to maintain and improve good relations with suppliers and consumers.

A value chain analysis is needed to find out which actors need an improvement, both in the terms of technology and human resources to increase added value. The value chain approach helps to understand how the condition of value formation along the chain, identify who is handling it, answer

broad and specific questions and take a partnership-building approach (Bahtiar and Kindangen, 2011).

Based on the background that has been explained, it is necessary to conduct research on a value chain analysis, especially in milkfish processing in Sidoarjo Regency to obtain better strategies that are more profitable for various parties. The objectives of this research are to: (1) describe the mapping flow of processed milkfish in Sidoarjo Regency, (2) determine the improvement of the processes milkfish value chain in Sidoarjo Regency.

RESEARCH METHODS

This research was conducted in Sidoarjo Regency, East Java. The setting of the study was carried out based on the research objectives and deliberations (purposive) that Sidoarjo Regency is a potential area in the development of the milkfish cultivation sector. This research was conducted in May-July 2020.

The sampling technique used is non-probability sampling using snowball sampling. Determination of the first respondent is milkfish processing in Sidoarjo Regency, East Java. The sample in this study included 4 cultivators, a person in borg, 3 milkfish processors, 2 collectors, and 40 consumers.

The data analysis used in this study includes several steps, including: (1) mapping the value chain by identifying and mapping the core processes of actors involved along the milkfish processing chain, (2) conducting cost benefit analysis and margin to determine the distribution of each actor and knowing the value chain performance, (3) analyzing the value chain improvement using a benchmarking with competitors who are considered better.

RESULTS AND DISCUSSION

Mapping Analysis of Value Chain

A. Mapping of Value Chain Actors

There are 5 actors involved in value chain of processed milkfish, namely:

1. Cultivators

Cultivators are important actors in the value chain where they only carry out the process of growing the milkfish. The result of the farmers’ production are milkfish with a consumption size of 3-4 fish / kg which are then marketed to the big fish market in Sidoarjo.

2. Borg

Borg is the guarantor who is entrusted with milkfish to sell under an auction system to other actors in the big fish market Sidoarjo.

3. Collectors

Collectors usually get milkfish by buying in the big fish market. Then, they market it to the traditional markets and supply milkfish to the milkfish processing industry.

4. Processors

Processors usually work with collectors to supply milkfish. The supply of milkfish can be sent directly by collectors or by coming to the market in person to choose fish they want since collectors sell the fish in the market as well.

5. Consumers

The targeted consumers are Sidoarjo residents and travelers visiting Sidoarjo.

Figure 1. mapping of value chain actors of processed milkfish

B. Activity of Value Chain

According to Porter (1994), value activities are divided into two, namely primary and supporting activities.

1. The Primary Activities

   Inbound logistic
   
   The main factor in milkfish processing that needs to be considered is the freshness of the milkfish that will be processes. Processors usually obtain milkfish from the fish market or from collectors.

   Operation

   Operational activities are done by washing fish, removing thorns, seasoning, cooking and packaging. The processed food that are often produced are otak-otak and presto.

   Outbound Logistic

   The outbound logistical activity of the processors is by distributing processed milkfish to the final consumers. On average, processors market this food product directly online or the costumers come directly to the production house.

   Marketing and Sales

   Before the product is delivered to the market, the processors determines the selling prices
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according to the costs incurred during the production. Product marketing is carried out in the production house, owned and online stores.

Services
Services provided by the processors are usually from loyal customers contacted only by telephone to order processed milkfish. Some processors take a cooperation with food delivery application via online motorbike taxi. Some of the services provided depend on the processors’ analysis in seeing the marketing opportunities for their milkfish products.

2. Supporting Activity

Infrastructure
The processing infrastructure consists of finance, technical guidance and production equipment assistance by the government and universities. This processing finance is in the form of owned savings to facilitate business activities or expand its business. Meanwhile, the aid provided was intended to make it easier for processors to produce more efficient milkfish processes.

Human Resource Management
Labor comes from family members and other people. The wage payment system is given on average daily ranging from IDR 40,000 to IDR 60,000 per day.

Technology Development
The majority of technology development is carried out only in a simple manner. However, there are some processors who have a vacuum sealer machine that can make milkfish processing is more durable. Processors usually use this machine when processed milkfish will be taken out of Java or abroad.

Procurement
Procurement is as an operational activities support obtained from the assistance of Sidoarjo Regency government where these tools are not spared from the production activities. While the purchase of other tools is obtained independently by the processors, such as freezer, vacuum sealer machine and others.

Analysis of Cost, Profit, and Margin
Margin analysis of marketing is a price gap among the actors in value chain that is aimed to know the amount of benefit obtained by each actor in value chain. By knowing the profit and cost it is expected to be able to improve the performance of value chain to be more efficient and effective. Calculation of margin and profit could be seen in the following table.

Table 1. Calculation of cost, profit, and margin of actors of milkfish value chain

<table>
<thead>
<tr>
<th>Actors</th>
<th>Cost/kg</th>
<th>Price/kg</th>
<th>Profit/kg</th>
<th>Profit per Unit (%)</th>
<th>Margin per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivators</td>
<td>12,796</td>
<td>15,000</td>
<td>2,204</td>
<td>5.89</td>
<td>15,000</td>
</tr>
<tr>
<td>Borg</td>
<td>15,000</td>
<td>18,000</td>
<td>3,000</td>
<td>8.02</td>
<td>3,000</td>
</tr>
<tr>
<td>Collectors</td>
<td>18,000</td>
<td>20,000</td>
<td>2,000</td>
<td>5.34</td>
<td>2,000</td>
</tr>
<tr>
<td>Processor A</td>
<td>46,067</td>
<td>52,000</td>
<td>5,933</td>
<td>15.85</td>
<td>32,000</td>
</tr>
<tr>
<td>Processor B</td>
<td>50,712</td>
<td>75,000</td>
<td>24,288</td>
<td>64.90</td>
<td>55,000</td>
</tr>
</tbody>
</table>
In that table it is seen that the biggest margin obtained by Processor B is Rp 55,000,- or 51.4%. Second biggest margin is Processor A that obtains Rp 32,000,- or 29.91%. Cultivators obtain margin Rp 15,000,- or 14.02%. Collectors obtain margin Rp 2,000,- or 1.87%. In contrast, borg obtains margin Rp 3,000,- or 2.8%. The difference of margin borg and collectors is not too far because the selling price of milkfish is decided by the market and the fish is still fresh and is in a good condition.

Strategy of upgrading value chain of milkfish

Benchmarking Analysis
Benchmarking is used to assess the performance of business of processing milkfish that is considered superior. The processors should do activity that can upgrade the product quality of processed milkfish from its competitor. In this case each processor is compared to some variables explained in the following table.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Processor A</th>
<th>Processor B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>Bandeng presto: IDR 10,000,-/pcs</td>
<td>Bandeng presto: IDR 10,000,-/pcs</td>
</tr>
<tr>
<td>Taste</td>
<td>Otak-otak: IDR 13,000,-/pcs</td>
<td>Otak-otak: IDR 15,000,-/pcs</td>
</tr>
<tr>
<td>Aroma</td>
<td>Full of spices, delicious</td>
<td>Vapid</td>
</tr>
<tr>
<td>Quality</td>
<td>Muddy odour-free</td>
<td>Product is always new</td>
</tr>
<tr>
<td>Size</td>
<td>Consumption size 4 fish/kg</td>
<td>Consumption size 5 fish/kg</td>
</tr>
<tr>
<td>Stock</td>
<td>Always available</td>
<td>Always available</td>
</tr>
<tr>
<td>Packaging</td>
<td>Simple, uninteresting, using</td>
<td>Quite interesting, wrapped in</td>
</tr>
<tr>
<td></td>
<td>plastic</td>
<td>packaging box</td>
</tr>
<tr>
<td>Marketing</td>
<td>Kios in traditional market</td>
<td>Production house, shop, and social</td>
</tr>
<tr>
<td></td>
<td></td>
<td>media</td>
</tr>
<tr>
<td>Wastage</td>
<td>7 pcs</td>
<td>3 pcs</td>
</tr>
</tbody>
</table>

In that table either processor A or processor B have superior processed milkfish product namely bandeng presto (grilled boneless milkfish) and otak-otak. The size of milkfish that is used is 1 kg containing 4-5 milkfish. Processor A has strength in taste that is full of spices and the price that is relative cheaper than processor B. In contrast, processor B has strength in the aspect of less wastage and the way of marketing the processed milkfish product is varied such as in production house, shop, and social media namely facebook. Therefore, processor B can reach more consumers. However, the weakness of processor B is in the taste of the product that is vapid (tasteless).

Upgrading Analysis
Upgrading shows perspective on functional upgrading, the main competency standard that is dynamic including upgrading the product, process, function, and upgrading in the next value chain. Upgrading value chain especially processing milkfish is explained in the following:

1. Upgrading the process
   a. Using tool that can reduce amount of wastage such as freezer or refrigerator
   b. Using pan with bigger capacity in order to be more efficient
   c. Maintaining tool gradually in order to reduce depreciation cost

2. Upgrading the product
   a. Improving the diversification of other processed milkfish products such as crispy milkfish, bandeng sapit, pepes bandeng (steamed milkfish), and others.
   b. Determining the price that is adjusted to the needed production cost. If it offers higher price, it should be accompanied by better product quality.
   c. Upgrading the design of packaging in order to attract more consumers.
   d. Mentioning expired date, BPOM, PIRT and Halal certificate from MUI in the packaging of processed product milkfish even it is registered in order to give the guarantee to the consumers to feel safe in consuming the product.

3. Functional upgrading
   a. Improving the usage of pan to steam milkfish that it usually produces 10 kg by using 3 pans, but then it could be increased into 20 kg per day.

4. Upgrading chain
a. Making its own shop (outlet) to have strategic location so it eases the consumers in reaching the product.

b. Using the social media or online marketplace platform to reach more consumers.

CONCLUSION

Based on the conducted study it can be concluded that:

1. Main actors in value chain of milkfish commodity in Sidoarjo namely, cultivators, borg, Collectors, processors, and consumers. Marketing of this processed milkfish is mostly in otak-otak and presto. Margin that is obtained by each actor is quite varied; processor B obtains IDR 53,000,- or 14.3%. Second biggest margin is Processor A IDR 30,000,- or 28.6%. Cultivators obtain margin IDR 15,000,- or 14.3%. Collectors obtain margin IDR 4,000,- or 3.8%. In contrast, borg obtains margin IDR 3,000,- or 2.8%. Difference of margin borg and Collectors is not too far because the selling price of milkfish is determined by the market and the fish is still fresh and is in a good condition.

2. Upgrading value chain of milkfish especially processed milkfish is bigger than its product that upgrading the design of packaging that is more interesting, diversification of the product, and mentioning the expired date and business registration number. In addition, upgrading the capacity of production and the usage of appropriate production tool in order to be able to reduce the cost and increase the profit.

REFERENCES


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