

## VALUE CHAIN ANALYSIS OF COW'S MILK AT CIBUBUR GARDEN DAIRY (CIBUGARY) DAIRY FARM, CIPAYUNG, EAST JAKARTA

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### Abstract

Post-milking cow's milk or in the form of fresh unprocessed cow's milk has very vulnerable properties caused by the surrounding environment, such as air, temperature, and bacteria so that it can cause the company to suffer losses, so it is necessary to carry out proper processing and packaging. This study aims to map the supply chain of cow's milk in Cibugary Farm. Analyze the cow's milk value chain at Cibugary Farm. Analyze the added value of cow's milk in each member of the supply chain. Determine the distribution margins to business actors along the production value chain, determine the priority of dairy products that can be developed at the processing level.

The qualitative analysis describes descriptively the supply chain, value plan, process flow, and overview of Cibugary Livestock. Meanwhile, quantitative analysis is used to analyze the added value in animal husbandry, processing, and marketing as well as exponential comparison methods.

The results of this study are that the members of the cow's milk supply chain consist of Cibugary-farms, cow milk processing industries, *resellers*, *Cibugary* outlets, and consumers. The value chain condition of cow's milk processing at Cibugary Farm is quite good in terms of the availability of infrastructure, raw materials, and market access, but the ability of competent human resources, in terms of the technology used is still relatively simple. The biggest profit obtained by cow's milk value chain actors is at the Cibugary dairy farm level of Rp. 65,396,062.83 /month. The amount of margin obtained in *pasteurized* milk processing is Rp. 35,000, yogurt processing industry is Rp. 45,000, mozzarella cheese processing industry is Rp. 85,000, a *reseller* is Rp. 3,000. The results of the calculation of the exponential comparison method can be concluded that the most potential processed product is *Pasteurized Milk*, with a value of 76,881,381.

**Keywords:** Value Chain; Cow's Milk; Supply Chain; Value Added; MPE.

### INTRODUCTION

In the dairy farming industry in Indonesia until now it has not been able to compete with the main milk-producing countries in terms of quality, price and quantity produced. Thus, milk production in Indonesia until now has not been able to meet the needs in terms of public consumption. (Agricultural Data and Information Center, 2018). Domestic cow's milk production has not been met causing imports to be able to meet milk needs. The main center for producing dairy cow milk is located on the

island of Java. East Java has a position as the largest producer of dairy cow milk, then the West Java region and the Central Java region occupy the third position. DI. Yogyakarta is in the fourth position and DKI Jakarta is in the fifth position.

DKI Jakarta is one of the main centers for producing milk that can be developed in the dairy farming subsector. The amount of cow's milk produced in DKI Jakarta Province is very influential in meeting the needs of the dairy industry in Indonesia. Pondok Ranggon Village is designated as a Dairy Farming Business Relocation area by the DKI Jakarta Provincial Government. Along with the advancement in the use of dairy machines, and the increasing production and sales of milk Cibugary experienced a problem in the marketing process. Post-milking cow's milk has a vulnerable nature caused by air, temperature, and bacteria so it can suffer losses. Damage to cow's milk caused by this environment makes milk buyers from outside Jakarta complain about the nature of milk that does not last long at room temperature and on the way, because for room temperature milk is only strong at a period of 3 hours, while in the freezer it is strong at a period of 6 hours. If more than that period the milk changes like it has a sour taste, a lumpy texture, and can no longer be consumed. Several complaints from buyers made Cibugary carry out a good processing and packaging process so that the resulting cow's milk products get the right treatment or handling.

Proper handling creates added value, and the company can minimize losses. Therefore, Cibugary processes milk into *pasteurized* milk products, yogurt, and mozzarella cheese which aims to make the shelf life of dairy products a long shelf life and will produce added value. Based on the background described; the formulation of the problem How is the supply chain of cow's milk in Cibugary Farm? (2) What is the value chain of cow's milk at Cibugary Farm? (3) What is the added value of cow's milk in each supply chain actor? (4) What is the distribution margin for business actors along the production value chain? (5) What dairy products have the potential to be developed at the processing level?

## **RESEARCH METHODS**

### **Research Location and Time**

The study was conducted CV. Prima Vita or more commonly known as the farm (Cibubur Garden Dairy) Cibugary. Location on Peternakan Raya Street Blok C No. 12, DKI Rt01 RW02 Livestock Complex, Pondok Ranggon, Cipayung, East Jakarta. Research in April-October 2020.

### **Data Types and Sources**

The data sources in this study use primary data and secondary data in the form of qualitative and quantitative data. The primary data used were obtained from observations and interview techniques. The types of primary data collected include cow's milk supply chain, value chain, and other data related to the problem under study. Meanwhile, to obtain secondary data obtained through thesis, thesis, journals, and company documents related to the research title.

### **Data Analysis**

#### **Value Chain Analysis**

Value chain analysis at Cibugary Farm is used to find out how activities become processed cow's milk products at Cibugary Farm. To analyze the value chain

using the method of interviewing and surveying value chain actors involved in processing cow's milk.

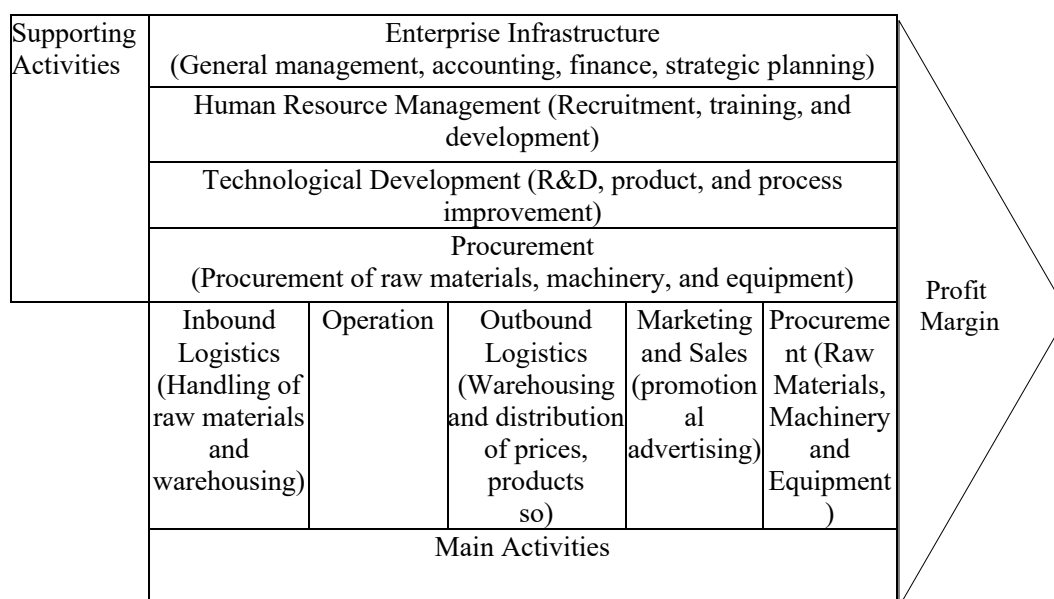


Figure 1. Value Chain Model  
Source: Hunger and Thomas, 2003

### Value Added Analysis

According to Soekartawi (2016) acceptance is the multiplication of the selling price by the number of products produced. The cost and income method can be calculated using the following formula:

$$TR = y \cdot py$$

Information:

TR = Total Receipt of Cow's Milk/Processed Cow's Milk Products

y = Resulting Cow's Milk Products

py = Cow's Milk Price/Cow's Milk Processed Products

Total receipt is deducted with, and total costs incurred, and can be calculated using the following formula:

$$Pd = TR - TC$$

Information:

Pd = Cow's Milk Sales Revenue/Cow's Milk Processed Products

TR = Total Receipt of Cow's Milk/Processed Cow's Milk Products

TC = Total Cost on Farm/Processing/Marketing of Cow's Milk

### Exponential Comparison Method (MPE)

Exponential Comparison Method is a method used to find out which products have the most potential or product priorities as a material for the company's consideration for product development. This method is carried out by interviewing experts or experts using a questionnaire in which there is a level of importance with several criteria.

## RESULTS AND DISCUSSION

### Cow's Milk Supply Chain

The members of the milk supply chain involved have their functions and roles in distributing cow's milk. Cibugary farms use *Friesian Holstein* (PFH) type cows, Cibugary farms produce an average of 10 liters of whole milk every morning and evening milking with a total of 36 cows ready for dairy. Milk yield milked at each time of milking is not fixed in quantity, the milk yield greatly affects the condition of the cow. The milk processing industry was founded by Cibugary Farm to increase the value of the company. This business unit creates a variety of processed cow's milk such as *pasteurized* milk, yogurt, and mozzarella cheese with the main raw materials for cow's milk. The cow's milk processing business it requires cow's milk raw materials of 100 liters of cow's milk every day to produce processed products, 50 liters for *pasteurized* milk, 30 liters for yogurt, and 20 liters for mozzarella cheese. Resellers in processed products buy as many as 50 bottles of *pasteurized* milk and yogurt every day for of Rp. 10,000 and resell them at for Rp. 13,000. In addition to being sold to resellers, the processing industry sells its processed products at Cibugary's outlets. Consumers can buy fresh or processed milk products directly from Cibugary farmers, namely pasteurized milk, yogurt, and mozzarella cheese can buy from Cibugary outlets directly by enjoying the atmosphere of the farm directly and can also buy from resellers.

### Cow's Milk Value Chain Analysis

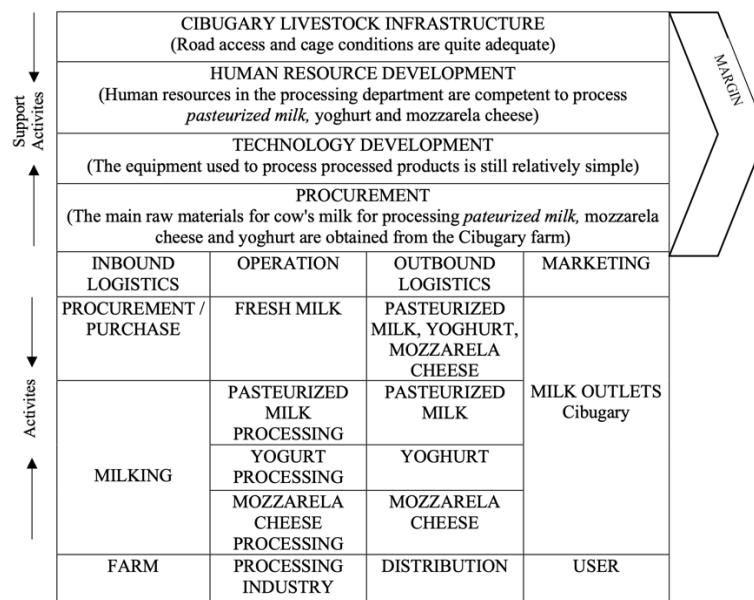


Figure 2. Cow's Milk Processing Value Chain  
Source: Cibugary Livestock Data (processed)

### Value Added Analysis

The acceptance and profit obtained from each supply chain business actor are different, on dairy farms get a profit from the sale of milk of Rp. 65,396,062.83 / month and Rp. 5,448.42 / liter of milk, then in *the pasteurized* milk processing industry obtained a profit of Rp. 32,133,125 / month and Rp. 5,355.52 / 250ml *pasteurized* milk. Furthermore, in the yogurt processing industry, it earned a profit of Rp. 24,011,875 / month and Rp. 5,335.97/ 200 ml of yogurt. In the mozzarella cheese processing

industry, it earned a profit of Rp. 932,475 / month and Rp. 3,885.31 / 250 grams of mozzarella cheese. Meanwhile, at the marketing level of *pasteurizes* milk and yogurt by *resellers*, they get receipts and profits of Rp. 16,905,333 / month and Rp. 1,270.22 / 250 ml *pasteurized* milk and per 200 ml of yogurt, these costs.

Each supply chain actor has different added values. In dairy farming, an added value of Rp. 5,448.42 /liter/month with a percentage of 138.76 is obtained, which means that to produce cow's milk one liter requires a cost of Rp. 3,926.58. In the *pasteurized* milk processing industry, an added value of Rp. 5,355.52/250ml of *pasteurized* milk/month with 115.31% was obtained, which means that to produce *pasteurized* milk measuring 250ml, a cost of Rp. 5,355.52 is required. Furthermore, the yogurt processing industry obtained an added value of Rp. 5,335.97/200ml of yogurt/month with 114.41% which means that to produce a 200ml yogurt, a fee of Rp. 5,335.97 is required. Then the mozzarella cheese processing industry obtained an added value of Rp. 3,885.31/ 250 grams of mozzarella cheese/month with 10.76% which means that to produce mozzarella cheese measuring 250 grams requires a cost of Rp. 3,885.31. Meanwhile, in the marketing of *pasteurized* milk and yogurt at the level of *reseller*, an added value of Rp. 1,270.22/250ml of *pasteurized* milk and 200ml of yogurt/month with 10.83% was obtained, which means that to market marketing products of 250ml *pasteurized* milk and 200ml yogurt, a fee of Rp. 1,270.22 is required.

The *pasteurized* milk processing industry received a receipt of Rp. 40,000 with a margin of Rp. 35,000, with the initial price of cow's milk, purchased at the farmer level of Rp. 5,000 / liter will produce 4 bottles of 250 ml of *pasteurized cow's milk*. Furthermore, the receipt obtained in the yogurt processing industry is Rp. 50,000 with a margin of Rp. 45,000, with the initial price of cow's milk, purchased at the farmer level of Rp. 5,000 / liter which will produce 5 bottles of 200 ml of yogurt. To produce 250 grams of mozzarella cheese requires 25 liters of cow's milk, thus the price that must be spent to produce 250 grams of mozzarella cheese is Rp. 125,000. Then the receipts obtained in the mozzarella cheese processing industry amounted to Rp. 40,000 with a margin of Rp. 85,000, with the initial price of cow's milk, purchased at the farmer level of Rp. 5,000 / liter.

Meanwhile, at the reseller level, the receipt obtained from the marketing of *pasteurized milk and* yogurt is Rp. 13,000 with a margin of Rp. 3,000, with the initial price of cow's milk, purchased at Cibugary outlets of Rp. 10,000 for each product.

### Exponential Comparison Method

MPE Value Calculation:

Alternative 1 (*Pasteurized* Milk):

$$= (9)^8 + (8)^8 + (8)^8 + (3)^3 + (3)^2 + (4)^4 + (6)^7 = 76.881.381$$

Alternative 2 (Yogurt):

$$= (8)^8 + (8)^8 + (8)^8 + (2)^3 + (3)^2 + (3)^4 + (6)^7 = 50.611.682$$

Alternative 3 (Mozzarella Cheese):

$$= (97)^8 + (8)^8 + (7)^8 + (2)^3 + (5)^2 + (4)^4 + (4)^7 = 28.323.491$$

The most potential dairy product to be developed is *Pasteurized* Milk, with a value of 76,881,381. Furthermore, processed yogurt products rank second as processed products that are also potential, followed by mozzarella cheese in the third position. If judging from the results of the calculation of added value and profit, there are three business actors, namely animal husbandry, processing, and marketing, the largest

added value is found on livestock, which is Rp. 5,448.42 per liter of milk. The biggest profit is also found in the farm with a profit of Rp. 64,271,062.83 / per month.

## CONCLUSIONS AND SUGGESTIONS

The members of the cow's milk supply chain consist of Cibugary farms, the cow's milk processing industry, *resellers*, Cibugary outlets, and consumers. The distribution of products starts from the Cibugary cattle farm, then distributed to two marketing channels, namely, the cow milk processing industry and direct consumers. Furthermore, the processing industry sells processed cow's milk products at Cibugary's milk outlet, besides that, some resellers buy products directly from Cibugary, resellers sell 2 products, namely *pasteurized* milk, and yogurt. The value chain conditions of cow's milk processing at Cibugary Farm are quite a good judging from the availability of infrastructure, raw materials, market access, and human resources capabilities. However, in terms of technology used in the field of processing, it is still relatively simple.

The biggest profit obtained by cow's milk value chain actors was Rp. 65,396,062.83/month ago. Pasteurized cow's milk processing earned a profit of Rp. 32,133,125 / month and the next biggest profit. Yogurt processing earned a profit of Rp. 24,011,875/month. The amount of margin obtained in *pasteurized* milk processing is Rp. 35,000, then in the yogurt processing industry, it obtains a margin of Rp. 45,000, then the margin obtained in the industry. processing amounting to Rp. 85,000. Meanwhile, at the reseller level, it obtained a margin of Rp. 3,000. Calculations using the exponential comparison method can be concluded that the priority of processed products is the most potential *pasteurized* milk, with a value of 76,881,381.

As input for the company, there are six variants of processed products from milk in the field of processing, considering that the human resources involved in the processing are very competent and there is involvement from supporting institutions such as the Trade and Cooperative Industry Office related to the development of small and medium-scale industries in the Company. Development in terms of technology such as adding tools and machines to the processing process in increase the quantity and quality of the products produced. Conducting BPOM Legality Licensing and Halal Certification so that the products marketed can develop and create confidence in consumers that the products have been standardized.

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