

The Supply Chain Management of Farm Industries of Etawah Crossbred Goat Milk Toward in Wonosari Village, Malang Regency

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Abstract: farm industries is one of the plans in a part of agriculture system. the purpose of this research was (1) Identified the goat milk supply chain in the Wonosari village, (2) Analyzed the goat milk supply chain in the Wonosari village, (3) Knowed the added supply advantages of goat milk in the Wonosari village. The research was conducted in February 2020 in Wonosari village, Malang Regency. Based on the results of the analysis that has been done, it was found that the supply chain of milk processing until the consumer produces two supply chains, namely marketing is done online and offline. Offline marketing is marketing done by stalls that take products at the dairy house, while online is consumers who buy using social media assistance such as Instagram and WhatsApp. The profit analysis found that the highest profit was found by the flavored skim powder product, which was 1,500,000 IDR followed by pasteurized milk products of 500,000 IDR and kefir products in the amount of 300,000 IDR.

I. INTRODUCTION

The farm industries sector is a sector that is quite potential and has proven that as one sector that is able to survive and grow during the crisis that hit Indonesia. Basically, Indonesia has enormous potential in the field of farm industries, as evidenced by the availability of abundant natural resources, the strategic location of Indonesia in the world market, and the wide prospects of the farm industries market at the national and international levels. Animal husbandry commodities are known as commodities that have many benefits. The main livestock products (meat, milk and eggs) are a source of highly nutritious food. The livestock sector is included in the food and beverage sector, according to the Ministry of Industry of the Republic of Indonesia [4] the food and beverage sector in Indonesia had a large growth potential because it is supported by abundant agricultural resources and large domestic demand. The strategies to be achieved in the changing food industry 4.0 related revolution include: (1) Encouraging productivity in the upstream sector, namely agriculture, animal husbandry, and fisheries through the application of advanced technologies such as automatic monitoring systems and autopilot drones; (2) because more than 80% of the workforce is in industry along the supply chain to adapt technology that can increase their production and market share; (3) Committing to invest in packaged



food products to capture all domestic demand in the future along with increasing consumer demand; (4) Increasing the exports by utilizing access to agricultural resources and the scale of the domestic economy. One of the objectives of farm industries is to produce a product from the upstream to downstream subsystems [10]. This continuity is a form to fulfill the availability of supply, especially meat, processed animal products and others. In the farm industries system from upstream to downstream has added supply in each sub-system [8]. Therefore, the need for strategies to improve the efficiency of farm industries [7], especially in Wonosari Village that is Supply chain analysis is needed to know which stakeholders need to improve technology and human resources to increase added supply [5]. The supply chain approach helps the understanding on how the conditions of supply formation along the chain [6], identifying who is handling it, answering the broad and specific questions, and approaching the building of partnership relationships [3].

II. RESEARCH METHODS

Research Location

Researchers chose the location for the research in the Wonosari Village, because the population of goat livestock is increasing every year.

Research Method

This research method used a quantitative approach. Quantitative research emphasized numerical research focusing on the results of data processing through statistical methods to discover the new facts to prove a theory. The sampling method in this study is purposive sampling technique based on data in the field. The respondents that were sampled consisted of farmers, dairy product business entrepreneurs, and consumers. Analysis of the data used is descriptive supply chain analysis and profit analysis.

Data Analysis

Data that had been processed was analyzed descriptively and economically analysis. The economic analysis in this study was aimed to determine the supply chain, production costs, added supply, income, profits, and knowing the Revenue Cost Ratio (R / C). The calculation formulas are as follows:

1. Cost analysis, calculated through fixed costs and variable costs. With the formula [1]:
 $TC = TFC + TVC$, that TC = Total Cost, TFC = Total Fixed Cost, TVC = Total Variable Cost.
2. Benefits (Soekartawi, 2016): $\Pi = TR - TC$, where Π = profit, TR = Total revenue, TC = Total cost.

III. RESULTS AND DISCUSSION

Livestock of Rised System

The goats raised by breeders in Wonosari Village are generally Etawah crossbreed goats. PE goat is a goat that results from a cross between Indonesian Native Kacang goats and Etawah (Jamnapari) goats from India, so that PE goats have the characteristics of both types of goats. Its nature is easy to maintain, able to adapt to extreme environments beneficial and efficient in converting feed into milk. The goat raising system in Wonosari Village is an intensive maintenance system. Intensive maintenance system carried out by breeders in the Wonosari Village, namely the activities of goats ranging from eating to milking activities carried out in the drum. Goat drum shaped stage and floor drum made of wooden boards. The shape of the stage drum is very practical for areas that are very humid and have rainfall. Besides this type of drum makes it easy to clean and collect dirt and urine [2]. Goat drums have good ventilation due to the large number of air cavities in the drums, so that dirty drums can easily come out with clean air. This is also supported by the wall of the drum made of bamboo, wood planks, and the combination. However, to be more robust, you can use materials such as cement and metal roofing. The location of the drum is also located quite far from the highway so it is good for the peace of goats. Goat feed is given every day in the drum where the feed is served in a kendang manger. The amount of feeding is based on sex and age of the goat, based on 10% body weight, and more breeders provide ad libitum forage. The feed given is in the form of forage and concentrate. Giving feed by cutting and curry, the aim is to make it easier for cattle to digest feed and provide better quality and quantity. Types of forage that is usually given to livestock include elephant grass, lamtoro, cassava leaves and other forages that can be consumed by livestock. All of the forage is usually taken and cultivated in farmers' feed gardens.



Goat of Milk Processed Business

Wonosari Village has many livestock groups that are still active today, but in the processing of goat milk there is only one place for processing milk, namely in Bangelan Village. Rumah Susu is the name of milk processing in that place, this goat milk processing business began in March 2015. The processing of goat milk is done to extend the shelf life of milk as well as to produce added supply in goat milk. Rumah Susu markets its processed milk products to the nearest stalls, which are in the villages and sub-Villages. The dairy house has not sold its products routinely out of the Village, but still within the surrounding area of the Wonosari sub-Village. Products that are always available at Rumah Susu are pasteurized milk, kefir, and powdered milk. According to the results of research data, the public response to processed products produced by goat milk is quite good, where the dairy house can sell all of its products totaling 450 bottles / pcs in a month.

Respondent Characteristics

The characteristics observed in this study were age, level of education, number of family members, length of business, and gender. The respondents were:

a. Breeders

The results of the field survey showed that the age of the farmers had an average of 45.9 years with an age range between 35 to 56 years. [6] states that the productive age of farmers ranges from 15 - 65 years while the age of 0-14 years and 65 years and over, including the unproductive age. The last level of education can be seen that elementary school was the highest with 60%, it cannot be said well due to lack of regeneration later on. The length of effort was also a benchmark.

b. The business doers of dairy products

Age is one of the supporting factors for doing a business, especially in the processing process, especially in the field of animal husbandry. [2] explain that in terms of population as a factor of production, not all residents can act as factors of production. The level of education has the same highest percentage, namely elementary and high schools with 42.86%, meaning that the higher the level of education the more experienced in processing milk products.

c. Consumer

Respondents with female sex were more than respondents with male sex. This is likely influenced by the decision-making process that is different between men and women in consuming dairy products. [7] stated that sex was the difference between men and women because of the social and cultural formations that exist in a socio-cultural system in a society.

Profit Analysis

Profit can be defined in two ways, the first Profit in pure economics is defined as an increase in the wealth of an investor as a result of capital investors, after deducting the costs associated with the investment. Having a great idea is not enough, turning ideas into tangible products, services, or business ventures is the next essential step [9]. Rumah Susu has several products that are consistent in its marketing, many products are inconsistent in sales, which requires product innovation. Profit analysis in this study is calculated based on production per month and per day in one product. Components in profit analysis are total fixed costs, total variable costs and the benefits themselves. Total explains the final price of production and received by the dairy house itself.

TABLE 1. Advantages of Powder Milk Products

Description	IDR/Production/Month	IDR/Pack/Day	Total
Total Permanent Cost	2,200,000	70,700.99	2,270,700.99
Total of Temporary Cost	5,900,000	190,000.00	6,090,000.00
Profit	1,500,000	4,700.09	1,504,700.09

Source: Primary data processed (2023)

Based on the results of the profit analysis it was found that the total fixed cost of the skim milk production component was 2,200,000 IDR production/month and 70,700.99 IDR production/day with a total fixed cost of



2,270,700.99 IDR. The total variable cost of the skim milk production component is 5,900,000 IDR production/month and 190,000 IDR with a total of 6,090,000.00 IDR. The benefits found from skim milk products are 1,500,000 IDR production/month and 4,700.09 IDR production/day and total profits found in one month are 1,504,700.09 IDR.

TABLE 2. Advantages of Pasteurization Milk

Description	IDR/Production/Month	IDR/Pack/Day	Total
Total Permanent Cost	2,330,000	71,700.99	2,401,700.99
Total of Temporary Cost	8,850,000	77,000.00	8,927,000.00
Profit	500,000	27,533.00	527,533.00

Source: Primary data processed (2023)

Based on the results of the profit analysis found several components in the process of making pasteurized milk products, the main components are fixed costs, total fixed costs amounting to 2,330,000 IDR production/month and 71,700.99 IDR production/day with a total of 2,401,700.99 IDR. The variable cost component is the costs that cannot be predicted in price, the total variable cost in pasteurized milk production are 8,850,000 IDR production/month and 77,000 IDR production/day with a total variable cost of 8,927,000 IDR. the profit generated by pasteurized milk are 500,000 IDR production per month and 27,533.00 IDR production/day with a total profit of 527,533.00 IDR.

Kefir products are the products with the lowest profit from the three products, some components in financing the production of kefir are the total fixed costs with the amount of 2,000,000 IDR production/month and 45,000.00 IDR production/day with a total amount of 2,045,000 IDR. The total variable cost is 610,000 IDR production per month and 21,000 IDR production/day for a total of 631,000 IDR. The profit gained from kefir production is 300,000 IDR production per month and 3,100.00 IDR of production/day with a total profit of 303,100/month.

TABLE 3. Advantages of Kefir

Description	IDR/Production/Month	IDR/Pack/Day	Total
Total Permanent Cost	2.000.000	45.000,00	2.045.000
Total of Temporary Cost	610.000	21.000,00	631.000
Profit	300.000	3.100,00	303.100

Source: Primary data processed (2023)

IV. CONCLUSION

Rumah susu makes a profit of 2,300,000 IDR/month, the highest profit is obtained by skim milk products with a percentage of 65.21%, followed by pasteurized milk 21.73% and kefir 13.04%.

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