

Production and Distribution Analysis of Dairy Farming

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Abstract—The purpose of this study is to analyze the production and distribution system from dairy farms in Mojosoongo, with purposive sampling from existing cattle rancher group. Based on the research data, the output product of dairy farming is milk, meat, cow dung, breeding, fertilizer and also biogas. Each of these outputs has its own share and market segmentation. One of potential product is dairy milk which can be absorbed by consumed directly, industry of dairy milk processed, and the hospitality industry.

Keywords: *production, distribution, village cattle farm and dairy industries, village unit cooperative*

I. INTRODUCTION

Boyolali Regency is one of the districts in Indonesia as a center for cattle farming, especially dairy farms with FH (Fries Holland) dairy types with a population recorded in the Boyolali Petroleum Office in 2017 with 92,619. Dairy cow is the brand of Boyolali Regency as the City of Milk. Dairy farming in Boyolali Regency is still hereditary in maintenance and is a side business. Products from dairy cows according to milk, cow dung, meat, skin, cow breeding and other processed products. This study focused on milk, dirt, and meat, and the process in making fertilizers, biogas and cooling units at KUD Mojosoongo. From each of these outputs requires an efficient distribution channel from upstream to downstream, so that it can be consumed by the community and absorbed properly by the market or subsequent processing industries. Distribution is the process of delivering goods and services from producers to target consumers. This is also in line with Oparilova, distribution channels for consumer product markets, intermediaries that are directly related to consumers or through retailers [1]. This study aims to analyze the production and distribution flow of dairy farming products in Boyolali district, especially in Mojosoongo as a sub-district.

Production is the transformation of resources into Heizer & Reinder goods and services [2]. The more efficient the company makes these changes, the more productive we become and the value added to the goods and services produced is higher. Productivity is a comparison between output (goods and services) divided by inputs (resources such as labor and capital) [2].

According to Kotler et, al., distribution channels are interdependent and involved in the process of making goods that are ready to use or consumed [3]. Whereas according to Corey, distribution channels are the main external resources [4]. It takes place and it cannot be changed easily. This system is important as the main internal resources such as production, research, production techniques, and sales force and field facilities. This system describes the commitment to large companies that are independent of their distribution business with the specific markets they serve. The distribution system also reflects the commitment of basic ingredients for extensive long-term regulation.

Industry-based freight forwarding industry are Consumable goods are items purchased for consumption. So, the buyer is the final buyer / consumer, not the user industry because the goods are no longer needed, can be used alone [5]; Industrial goods for further processing or for purposes in the industry. So, buyers of these industrial goods are companies, institutions, or organizations, including non-profits [5].

There are 5 basic types of distribution channels for consumer products are:

- Producer channel → retailer → end consumer.
- Manufacturer → retailer → end consumer.
- Manufacturer → wholesaler → retailer → end consumer.
- Manufacturer → agent → retailer → end consumer.
- Manufacturer → agent → wholesaler → retailer → end consumer.

II. METHOD

This research was conducted in 2017. The data processing used is Qualitative and quantitative data. Qualitative method according to Sugiyono is to test hypotheses/theories [6]. Based on a series of theoretical activities on qualitative research, because this type of research focuses on the description of data in the form of sentences that have deep meanings derived from informants and observed behavior. Data from the results of this research are in the form of facts found when in the field by researchers. Quantitative method according to Sugiyono, descriptive research is research conducted to determine the

value of independent variables, either one variable or more (independent) without making comparisons or connecting with other variables [6]. Primary data is obtained through observation and interviews with various stakeholders in research topics. Secondary data obtained from some literacy. Sampling Purposive Samples, the population is 1270 farmers in Mojosongo as a sub-district and 30 sample heads of paint groups, cooperative, several members, cattle traders, small industry and food stall traders.

In this study, researchers used the method of data analysis model Miles and Huberman cited Sugiyono interactively which is divided into 3 steps, namely: Data reduction, are the first steps in analyzing data in a study [6]. Data reduction activities in research aim to facilitate researchers in understanding the data collected; Presentation of data, researchers present data clearly and concisely to facilitate understanding of the problems studied, both in terms of the whole and part by part; Draw conclusions, is the third part and an important element in the technique of data analysis in qualitative research. From the process of collecting data, the researcher records all the processes that occur, seeing the cause and effect in a study. This is also in line with qualitative methods research Karundeng et al 'Analisis Saluran Distribusi Kayu' [7].

III. RESULTS AND DISCUSSION

A. Cow Dung

Manure Distribution Channel at Mojosongo are Processed and consumed by farmers;



Fig. 1. Biogas production and onstallation process.

From previous research conducted by Priyadi and Subiyanta 'The Potential of Biogas from Cattle Manure as Alternative Energy for Lighting', that biogas from cow dung has potential as alternative energy, in the case of research it was used as lighting for villages, while in this study researchers were still consumed by farmer households [8].

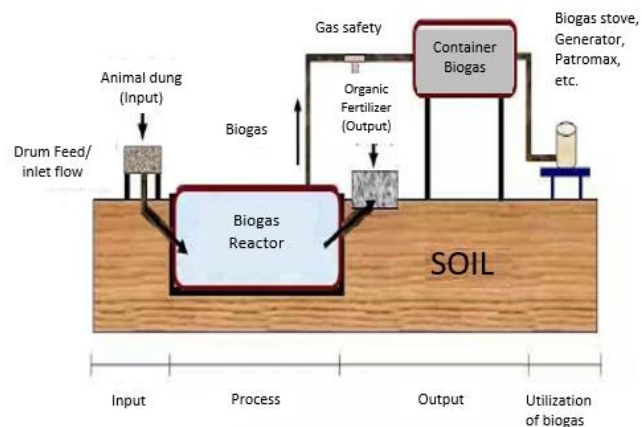
From the respondents, especially the Chairmen of the cattle rancher group, it is known that farmers need more of their own cattle dung to be used as a fertilizer in their fields. For the fertilizer industry itself still limited at the Boyolali area and the differences the purchase price of small manure industries is more determined by distance / transport costs, the above figure is the average number.

The following is Cow Dung Distribution Channel in Mojosongo Boyolali Regency:

- Processed and consumed by farmers.
- Farmer Rp. 1000 / kg -> Consumers Rp. 1000 / kg.
- Farmer Rp.700 / kg -> Small manure industry Rp. 1,700 / kg -> Retailers Rp.2000 / kg -> Consumers (As limited as Boyolali area).

B. Biogas

Bio Gas Distribution Chanel is only consumed by farmer households. Dairy cows in Jurug village, one of the villages in Mojosongo, cow dung can also be used as an alternative to biogas-shaped fuels. In several ranch households have been installed with biogas reactors, both cooperating with government agencies, the private sector and non-governmental organizations.



Source : Researches and The Livestock and Fisheries Service of Boyolali Regency

C. Cow's Milk

Cattle Milk distribution flow and selling price from upstream - downstream as follows:

- Farmer Rp. 4,500, - (not include SHU/ Cooperative Net Income) -> Cooperatives Rp. 5,000-> Dairy Processing Industries Rp. 14,000, - -> Consumer *in liquid milk packaging in retail.

- Farmer Rp. 4,700, - -> Small Loper Rp. 5,000, --> Wholesalers Rp. 5,300-> Dairy Processing Industries (small / local or large) Rp. 11,000, - -> consumer (milk powder in retail).
- Farmer Rp. 4,700, - -> Small loper Rp. 5,000, - -> Food stalls Rp. 7,000 (per glass @ Rp.3500, -) -> Consumers.
- Farmer Rp. 5,000, - -> Consumers.

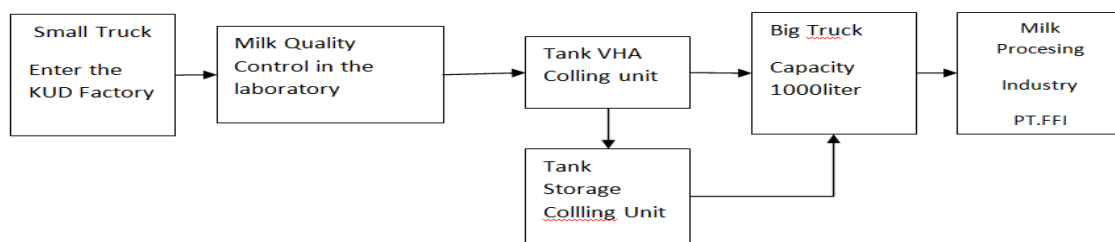
Production Process at Cooling Unit and Milk Unit KUD Mojosongo.

- Milk enters the factory since 6:00 a.m. to 9:00 p.m., and at 4:00 p.m. to 6:00 p.m. is the Oleptic Examsination of the manual senses the smell of color.
- Taking milk samples to be examined in the laboratory with the following standards: Specific gravity 0.25, Alcohol 0%, Counterfeiting (negative), Fat at least 3.3%, Lactose at least 4.5%, Protein at least 2.6%, Maximum bacteria 4-5% and Total Solid minimum 11%.
- Screening, the newly arrived milk using a filter box that is given a filter cloth. This is intended to remove impurities such as hair or feathers that are followed, fibers, or perhaps cow food remnants and other impurities.
- Filtering process using a filter plate, before inserting milk into the cooling plate.
- To ensure the milk is completely clean, at each end of the connecting hoses from one process to another, it is usually doing the re-filtering, means of the hose end is equipped with gauze so that the existing impurities can be held by the gauze.
- Milk is then put into the Dump Tank using a pump. Dump tanks are tanks of fresh milk that are carried by

truck at the shelter post. Its function is to store milk that is deposited by farmers. The storage tank is connected with a cooling unit using a centrifuge pump, made of stainless steel and has a capacity of 500 liters of milk.

- Ice Bank, it is function to produce 10C cold water which is cooled by a compressor, with a power of 100 kcal / hour with a capacity of 6000 liters of cold water. The principle works is that Freon in the tool will cool 6000 liters of water entering until 10C. The cold water is then poured out at a speed of 25,000 liters / hour to cool the milk. The cold water temperature will be 60C because there is a heat exchange with milk. The 60C temperature then returns to the ice bank to be cooled to 10C so that a continuous circulation event occurs and the volume of water in the ice bank remains 6000 liters.
- Storage Tank Storage tanks are tanks for storing fresh milk. Serves to temporarily store milk after milk has cooled through the cooling plate until the distribution process is carried out so that the milk temperature can be maintained at $\leq 40C$ because in the tank there is a flow of cooling water used as a cooling medium. In KUD Mojosongo there are 4 storage tank units so that the total storage capacity of the tank is 45,000 liters.
- Milk that has been cooled at the stage of the cooling process then. Through a hose some milk is put into a tank car with a capacity of 10,000 to 15,000 liters to be sent to one of the famous milk company in Indonesia.

The production process in the Milk Unit and Cooling Unit is shown in the following Figure 2:



Source: Researches and KUD Mojosongo,2011

Fig. 2. Colling unit production flow process.

D. Cow Distribution Channel

The picture above is a condition of buying and selling activities in the Sunggingan Cow Market in Boyolali Regency. The price of cows depends on the type and physical quality of both cows, broods and dairy cows that are intentionally sold for their meat with characteristics that are usually old or unproductive cows producing milk and males. Therefore, the flow of cattle sales distribution in this study did not see the type and quality of cattle that formed the price of cattle.

First, Farmers sell to large traders who are in the animal market; and second, Farmers sell to consumers (sold at the animal market / directly).



Source : researches

Fig. 3. Cow market Sunggingan.

IV. CONCLUSION

From the analysis of the above, it can be seen the production process, the biogas production and the cooling unit production process, while for the most distribution channels in dairy cow's milk products. In this study, we still have not seen a costly approach to production, transportation and marketing. Therefore, suggestions for further research; first, already entering the cost variable in each distribution channel and can be measured in full market share; second, there is research on regulatory rules relating to the distribution chain of dairy

products, especially in milk production. This is because currently according to BPS 2018, almost 80% of the needs of fresh cow's milk are still imported, because the costs of production and transportation for dairy cows are still not efficient if they meet the quality standards of imported cow's milk; third, Research on the synergy between economic institutions from upstream to downstream, such as *BUMDes*, Cooperatives, Livestock Groups, Dairy Processing Industry Players both large and medium scale, so that distribution channels can be more efficient [9].

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