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Value Added Analysis of The Corn Supply Chain As Feed For Poultry In the Sub-District, Contact the City of Bau-Bau

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Abstract

This study aims to: (1) assess the performance trajectory of the corn supply chain for the needs of the animal feed industry. (2) analyze the added value of the animal feed maize marketing system. using the census sampling technique, where the entire population is sampled because the population is small or less than 35 respondents, so the sample in this study was 30 respondents, i.e. all actors in the chain of corn supply. The technique used to obtain both primary and secondary data in this study was carried out through face-to-face interviews using questionnaires. descriptively to answer the problems and objectives. At the same time, the added value in the animal feed maize marketing system uses the modified Hayami method which will be analyzed to address the second problem and research objective. The results showed that: (1) Supply chain performance consists of a single line, starting from corn collectors and selling to wholesalers. Then the feed company buys from wholesalers as the main supplier of corn. The results of animal feed will be sold to retailers and marketed by end consumers. (2) The value added process created in the animal feed sector which provides added value for corn is Rp. 7,500 per kg of animal feed and the profit earned in the company is Rp. 2,300, - per kg of feed, then the total profit for a month of production is Rp. 5,750,000.
Keywords: Supply chain, Corn, Added value

A. Introduction

The natural resources of the agricultural sector are very abundant, so they must be managed properly, so that they can become a source of fulfillment and increase the economy of the community. Agriculture still plays an important role in efforts to increase the income of populations, particularly in rural areas and as a lever for the regional economy. Maize is a carbohydrate source after rice as a food source that can be widely used by the community. In addition to functioning as a feed, corn can also be processed into poultry feed, which contributes significantly to the production of eggs and chicken meat (Haryono, 2012).

The availability of maize has multiple effects on other agribusinesses, especially livestock (Akindipe, 2014). The current increase in the price of animal feed is influenced by the price of maize, since maize used for animal feed must be imported and maize costs almost 70 percent of the cost of producing animal feed. animals and eggs increase. Maize in South-East Sulawesi is an important and strategic commodity which is a food source after rice, as indicated by the harvested area of maize in South-East Sulawesi which reaches 23,945 ha with a production of

'about 68,141 tonnes or an average productivity level of 2.8 tonnes. / ha (BPS, 2016). According to BPS data (Southeast Sulawesi 2016 figures), the total population of laying hens in Southeast Sulawesi is 202,400 head, while the total broiler population is 3,970,393 head. Chicken egg production in Southeast Sulawesi reaches 1,524,072 kg, and chicken meat (chicken) production reaches 3,600,948 kg. This condition shows that the maize trade in Southeast Sulawesi has great potential and an important role in meeting the consumption needs of the population for eggs and chicken meat.

Wholesalers as suppliers of raw materials that will be transformed into animal feed, while the basic ingredients used are dry corn directly from farmers. However, in order to reach consumers, it is not only the role of producers that must be competitive (products reach consumers correctly, adequately, quickly and precisely) but throughout the chain, including retail to 'to the end consumer. The link between the corn supply chain and the added value of corn cannot be ignored, as it increases profits for both chain actors and retailers. From the point of view of the raw material suppliers (collectors, wholesalers, retailers and end consumers), the process brings benefits and added value for each actor in the sector involved in the development of the corn sector.

On the basis of the preliminary investigation, it was found that the price information at the level of farmers and collector traders was very different from that at the level of wholesalers. The existence of a fairly large price difference at the wholesaler level indicates that the price allocation for each actor in the supply chain is not evenly distributed, which is a problem that must be resolved immediately. Maize supply chain actors from the farmer level to the wholesaler level have very big differences in selling prices. But on the other hand, wholesalers have a bigger role in creating added value in every feed distribution chain. The business activities that are processed into feed for wholesalers are not based on market demand, but due to the cooperation between actors in the supply chain which is distributed to retailers to facilitate the marketing of feed for animals. This is due to the price difference based on the retail level and can increase the profits of chain actors by integrating animal feed.

Activities are carried out to take advantage of this potential by processing, distributing and marketing maize for making poultry feed as one of the business activities. However, in these business activities there are many suppliers who process corn for animal feed but are not vertically integrated as they can be purchased directly by end consumers. Although the animal feed business can be vertically integrated as it has several retailers, it can increase profits and great added value with the integration of animal feed. It is said to be vertical integration because there is a change in shape, i.e. dry corn seeds that will be processed into fine animal feed from the distribution process through to marketing through to retail, as well as the benefits and added value obtained by each actor in the chain are different, by analyzing the supply chain can address the above problems. Considering the fact that wholesalers have integrated animal feed compared to other traders who are not integrated, this research should bring great benefits and added value to producers in the exercise of their activities and bring value. to each actor in the chain in order to increase the revenues of each channel. . This is done so that each actor in the chain can perform well, as expected and ultimately satisfy consumers. Based on this background, the aim of this study was to assess the performance trajectory of the maize supply chain for the needs of the feed industry and to analyze the added value of the system. marketing of corn for animal feed.

B. Methodology

1. Research design
   The types of research used are descriptive research and quantitative research. The supply chain structure describes the elements involved in each actor in the chain. From the results of the interviews with the respondents, information was obtained that the actors in the performance chain of the maize supply chain consist of 5 main elements, namely the maize suppliers from the collectors, wholesalers, feed companies, retailers and end consumers. The five elements have their respective roles in creating a market structure that integrates with feed flows, financial flows and information flows. The end consumer becomes part of the structure of the supply chain as the end consumer is also involved in the flow of animal feed, finance and information. The supply chain structure in the feed industry takes the form of a network or can be referred to as a network supply chain.
2. Population and research sample
   Respondents to this study were collectors, wholesalers and retailers. The respondents were determined on purpose. Meanwhile, the non-probability sampling technique chosen is

census sampling. This can be done if the population is small or less than 35 people (Sudiyono, 2014). Based on information obtained from producers, starting with collectors, wholesalers and retailers using the census sampling technique, where the entire population is sampled because the population is small or less than 35 respondents, so the sample in this study was 30 respondents, ie all actors in the sector supply maize.

3. Data analysis techniques

The data analysis was carried out in a descriptive and quantitative manner, i.e. the management of the descriptive data was carried out by describing the supply chain performance trajectories for wholesalers through the identification of chain actors and the value-added processing process that has been turned into animal feed. At the same time, quantitative data processing is carried out by analyzing the added value in each chain of the feed maize marketing system according to the Hayami modification method.

a. Path and flow of the supply chain

It explains the supply chain performance journey by identifying chain actors or parties involved in the chain. In addition, it also explains the forms of cooperation that occur between supply chain actors at large traders. The data will be analyzed descriptively to answer the problems and objectives of the first research.

b. Added value analysis

According to Hayami et al. (2011) that the concept of value added is a change in value that occurs due to the processing of an input in a production process. This analysis aims to respond to the problem and to the objectives of the second study. Factors that affect value added for processing can be classified into two (Sudiyono, 2014), namely: (1) Technical factors, including production capacity, amount of raw materials used and labor work used. (2) Market factors, including product prices, labor wages, prices of raw materials, transport (transport costs) and the value of other inputs.

C. Findings and Discussion

1. Performance path of the maize supply chain in the animal feed sector

The corn supply chain is done qualitatively. The supply chain path is a path formed from the activities of marketing corn as one of the traded foods. The supply chain that goes from the collection of traders to the end consumer. The sectors of the maize supply chain formed from the marketing activities of maize and which can be marketed for animal feed are grouped together in the first line which is then called line I. The actors of each supply chain in maize are district collectors traders (PPK), wholesalers (PB), Enterprises (Producers), Retailers and End consumers.

Forming a supply chain from sub-district collectors who are directly linked to the wholesalers, then PB sells the maize directly to the feed company, so that the added value is created by the company , the added value is created by the dry retail line activity, then PB sells the corn for animal feed, thereby creating the added value by the companies which include retail, kaudapumen, retail, kayapumen, pagan, kaudapumen, kemapumen, mapumen, mapumen, mapumen, retail, final mapumen. The actors of the maize sector are a daily activity carried out on the marketing of maize and animal feed in order to obtain income and profits to meet the needs of their families. Under such conditions, maize will be more profitable if it is independently processed and sold as animal feed compared to being sold directly as maize seed. The actions they take can simplify the path of the corn supply chain so that the profit margin of the collector traders is lower than that of the wholesalers, then the company gets a higher profit than that of the appilokar collectors. The path of the supply chain is illustrated in the following figure.

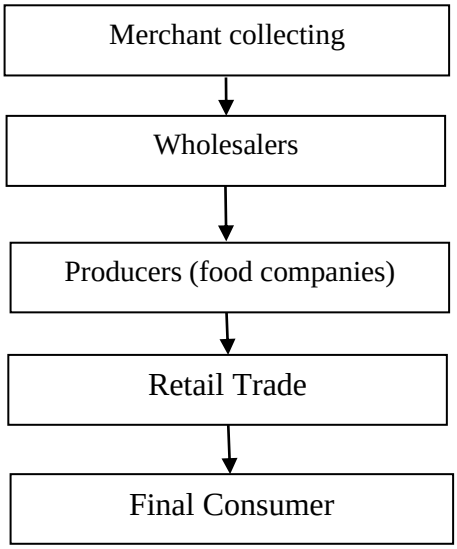

Figure 2. Supply chain

2. Analysis of the value added to the feed marketing system

Added value is linked to the principle of the supply chain because by adding value to an agricultural product, the product will be more easily accepted by large-scale producers. Added value is an indicator to see the performance of the supply chain. Fair profits for each actor in the supply chain is one of the characteristics of an integrated supply chain. Value added is a change in value that occurs due to the processing of an input in a process. production. The flow of increased value added from agricultural products occurs in every supply chain, from upstream to downstream, from collectors to end consumers. The added value in each supply chain varies depending on the input and treatment by each actor in the corn supply chain.

A value added analysis was conducted to obtain information on the feed added value, labor benefits, capital and management benefits for each kilogram of dry corn kernels processed into animal feed. Information regarding the compensation of production factors in the feed processing process is very important for economic actors. Feed distribution activities are carried out by involving multiple retailers to achieve feed production and profit, the amount of added value created in each company's corn supply chain.

Table 2. Value created by each actor in the corn supply chain in the animal feed sector, Bungi District.

No	Description	Average value (Rp/Kg)	Remaks
1	Merchant collecting	4.000	Form of corn
2	Wholesalers	5.000	Form of corn
3	Producers (food companies)	7.000	Animal foods
4	Retail trade	8.000	Animal feed

The supply chain includes all activities from the process of purchasing corn to the process of transformation into animal feed, the added value created in the animal feed sector, from the planning phase to the sale, the wholesalers will still provide corn used in feed processing. to treat. In the maize supply chain, which forms from the purchase of maize to the feed company, then the retailers directly cooperate with the feed company to obtain inputs which will be marketed to final consumers, the price is set by the producer of the animal feed company. according to the average number of orders of each. There are 20 retailers directly linked to the feed producers and registered as regular customers of the company. Each actor in the chain obtains different advantages depending on the activities carried out such as the marketing of corn to the creation of added value in animal feed which is channeled to end consumers, with different buying and selling prices in the industry. of animal feed as a function of the distance between retail orders and end consumers.

The analysis of the added value and profit obtained in animal feed carried out by this company starts from the dry corn grains used in one month of production, i.e. 2,500 kg, 120 liters of fuel, 500 grams of oil and 150,000 electricity / month. The value added analysis calculation is based on one kilogram of processed dry corn kernels per month. The fodder activity collects the corn kernels on a daily basis which will be used, in particular dry corn, for

processing. The value-added analysis consists of several components that make up such as the processing costs and the benefits received by each actor in the chain.

The raw materials used for processing come from corn, the animal feed produced can be sold to retailers and end consumers at different prices depending on the distance traveled both inside and outside the region. region with an average number of orders of 250 kg of animals to feed per month. The number of working days is calculated in a processing process up to 8 hours, and the number of working days in a month is 200 hours for 28 working days. The value of the conversion factor is 2, the value is the ratio between the results obtained and the quantity of corn used. The value of the conversion factor means that for every kilogram of corn processed, 2 kg of feed will be obtained.

The labor coefficient is obtained from the ratio between the number of workers involved in the working day unit and the quantity of corn processed. The calculation results indicate that the labor coefficient is 0.08 working / production day, which means that it takes 8 working hours to process 5,000 kg of feed. The price of food is determined from the quotient between the value of sales for a month of production and the quantity of food sold in a month of the production cycle. The price of the feed is taken from the price received by retailers and end consumers as the price of the feed will be different depending on the distance of the order and the fuel used is taken into account, so the price used is the average price per kg of feed, which is Rp. 7,000 / kg.

The price of the material used, ie dry-cleaned maize, valued at IDR 5,000 / kg, is the average purchase price of maize from collectors and wholesalers. Meanwhile, other inputs from fuel, motor oil, electricity, and food packaging are worth Rp 1,500 / kg. The average value of the contribution of other inputs divided by the kilogram of corn used in a month of production. The value of the feed is multiplied by the conversion factor by the price of the feed, where the value of the feed is 14,000 Rp./kg. The value of the product is higher than the price of corn used in one month of production because the average price of feed is quite high.

Value added is the difference between the added value of animal feed and the price of maize and other inputs. The added value created in the animal feed business during the process of managing corn for animal feed is IDR 7,500 / kg. The value added / food value ratio is 0.53%. The calculation results show that for each IDR 100 kg of feed, an added value of IDR 0.53% will be obtained. Social benefits are the result of multiplying the labor coefficient by an average wage of IDR 5,200 / kg. While labor share is the ratio of social benefits to added value, the value is 0.69%. The profit obtained from the value added in the feed trade is 2 300 Rp / kg, or the percentage profit rate of 0.31% is the value obtained from the added value minus the remuneration of the job. So, one month of production, the total profit in the feed business is Rp 5,750,000.

The results on the distribution of value-added feed are lacking as most of the profits are made by the retailers and the benefits of labor are relatively small, only 5,200 for workers compared to other value-added, due to the relatively low wages received by workers and only 200 hours of active working days in a month of production. The corn management process at the enterprise level is only carried out by five people from the corn lifting process, machine operators, cleaning, weighing and packing. added in the supply chain is analyzed to see a comparison of values. Obtained by each actor in the supply chain. Common costs are the costs incurred to produce two or more types of animal feed in a production process that is carried out simultaneously. When two or three animal feeds are produced from the same resource, a combined cost is formed. In this case, joint costs are the joint production costs incurred in the production process and produce animal feed products in the business. Where costs are used from the start of the management process, including the cost of fuel, engine oil, electricity, labor wages and the cost of depreciation of equipment incurred by the company to produce this type of animal feed.

D. Conclusion

Based on the results of the study, some of the results of the analysis can be stated as follows:

1. The performance path of the corn supply chain consists of a path, starting from the corn collectors and sold by the wholesalers. Then the feed company buys from wholesalers as the main supplier of corn. The results of animal feed will be sold to retailers and marketed by end consumers.
2. The added value process created in the animal feed sector on the marketing system has an added value to the animal feed of 7,500 Rp. - per kg of maize and the profit obtained in the

feed sector. animal feed is Rp. 2,300, - per kg feed, then the total profit for a month of production is Rp. 5,750,000.

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