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## PRO FARMER SUPPLY CHAIN PERFORMANCE OF HERBAL MEDICINE

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***Abstract:** Increasing education, healthy lifestyle trends, and awareness of the benefits of herbal medicines lead to the increasing demand for herbal medicines. These opportunities need to be utilized by herbal medicine farmers to increase farmers' profits. The selection and development of herbal medicine supply chain model, which takes the farmers' sides, is highly possible to increase the farmer's profit. The purpose of this study was to determine the performance of the herbal medicine processed supply chain that benefited farmers the most. Data collection obtained by surveying and field observation. The primary respondents were the traditional herbal medicine manufacturer and modern herbal medicines manufacturers, who bought raw materials to farmers either directly or through intermediaries. Respondents were selected purposively for retailers and snowball for traders. The analysis method used was trading margin and market share. The result of the research is that there are two trading channels, the first channel comprising farmers - processors - retail and the second trading channel involving farmers - intermediaries - whole sellers - processors - retail. The most efficient market performance, trading margins, and farmer's share are obtained from the first*

*trading channel because it has the smallest trading margin and the largest farmer's share. Research Limitations: has not calculated the amount of product added value in detail. The originality of this research is that it integrates business actors in the production process from upstream to downstream.*

**Keywords--***Supply Chain, Trade Efficiency, Herbal Medicine, Farmers alignment*

## 1. INTRODUCTION

Herbs have significant benefits for processing into herbal medicine products needed by humans. The utilization of herbs in primary form (a direct form of crop yield), and secondary form (a simple result of the primary form) increase the consumption of herbs. It is also a result of society's progressive knowledge of herbs [1]. The increasing consumption of herbal products is a huge opportunity to explore to gain useful products for consumers, provide opportunities for domestic producers, and also to enlarge farmer's capacity and profits. The increasing demand for herbal medicines in Indonesia has become a promising business opportunity and raise many herbal medicine producers. The higher demand for herbal products has the potential for farmers' income-generating. The problem arose about how to manage a supply chain that takes sides for the farmers?

Supply chain management is integrated management that is integrated and interrelated from the upstream to downstream industries that manage supply and demand, including the procurement of raw materials, production processes, storage and yield activities, handling and distribution, to delivery to the final consumer [2][16]. Astuti R and Marimin stated supply chain management is the process of production, distribution, and marketing so that consumers get products according to their wishes and producers can produce their products with the right quantity, quality, time, and location [3]. Supply chain management is the integration of planning, coordination, and control of all business processes to deliver superior value to consumers at the lowest cost [4][5]. A supply chain is a system where an organization distributes production goods and services to its customers. This chain is also a network of

various interconnected organizations that have the same goal, which is to carry out the procurement or distribution of goods as best as possible. Supply chain management is a group of assistive approaches to integrate the efficiency of suppliers (suppliers), companies, distributors, stores, or retailers. Besides, tools can produce and distribute products with the right amount, location and time, to reduce overall costs supply chain system as a condition of providing a level of satisfaction in service [6][7].

Supply Chain also interpreted as all activities involved in delivering products from raw materials to customers, including raw material sourcing, manufacturing and assembly, warehousing, ordering and order management, distribution in all channels, shipping to customers, and information systems needed to monitor all of these activities. Supply chain management integrates all activities into a process, including departments within an organization and external partners, including suppliers, operators, third-party companies, and provider information systems [8]. They are summarized that the supply chain management system is an integrated marketing system that includes the integration of products and agents to provide customer satisfaction. Actors in the supply chain are: 1) Producers of both individuals and groups, 2) Suppliers, 3) Processors, 4) distributors, 5) Retailers, and 6) Customers. The objectives of supply chain management are 1) reducing market risk, 2) increasing added value, efficiency, and competitive advantage, 3) construct product development strategies, and 4) strategy for entering new markets. Retailers need to reduce operating, procurement, marketing, and distribution costs. The ability to produce standard products and an efficient distribution system will increase the competitiveness of a product in the market and inhibit the entry of new actors in the market [9][10].

## **2. PREVIOUS RESEARCH**

The key to success in improving the efficiency of marketing of grass-root coffee includes improving coffee quality, quality incentives, simplifying marketing channels, and the need for mediation institutions, according to this

Performance indicator [11][12].The measurement of supply performance of food product chains is measured through four performance indicators: Food Quality, Responsiveness, efficiency, and Flexibility. Research by Andri concluded that to improve efficiency that benefits the overall economic system, farmers' synergy with consumers, and the processing industry is an urge to obtain an effective trade system [13]. There was an urgency on the approach to enhance the trading system that can improve the bargaining position of farmers as producers. Supply chain development strategies and models that reduce the high transaction costs in marketing horticultural products in the region are needed [14].Development Model of the supply chain of herbal products that favour farmers in the City of Bogor,Sukabumi Regency, Gunung Kidul Regency, and Yogyakarta City, is highly essential to answer farmers' problems and it never been studied before [15].

### **3. RESEARCH METHOD**

#### **3.1. Location and Time of Research**

The research located at the centres of the production of herbal in the City of Bogor,Sukabumi Regency, in Gunung Kidul Regency, Yogyakarta City, which sold to traditional processed markets and modern markets. Trading actors and farmers traced from retailers by using the snowball method. Trading actors' and farmers' locations may be from nearby areas of the processing factories or outside the district, which is the center of raw materials producers for herbal manufacturers all over Indonesia. Based on consideration of identification data on the marketing objectives of herbal products, two types of markets are determined, namely traditional processed herbal medicine and two modern markets in the Bogor City Region

#### **3.2. Research Respondents**

The primary respondents were producers of traditional herbal processing plants and producers of modern herbal medicines, who bought raw materials to farmers either directly or through intermediaries. Respondents were chosen

purposively for retail and snowball for traders and processors. Data processing calculates margin and market share.

### **3.3. Data Collection Methods Data**

Data collection methods used surveying and field observations. Primary data obtained through observation, interviews, discussions, and questionnaires with farmers and business practitioners. Secondary data collected from relevant literature from relevant institutions.

### **3.4. Method of Analysis**

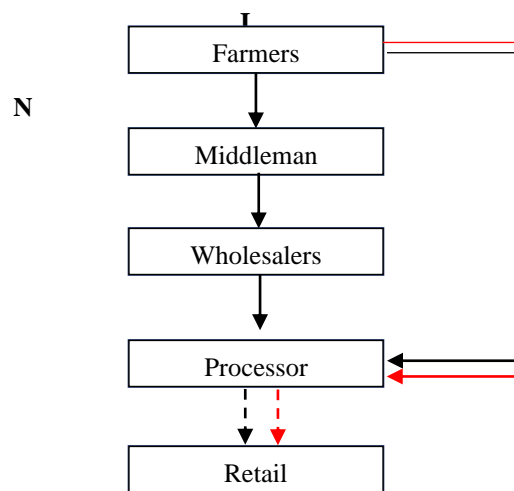
Data collected were analyzed quantitatively and qualitatively and presented descriptively. Supply chain efficiency is analyzed by farmer share and trading margin.

## **4. RESULTS AND DISCUSSION**

### **4.1. Trading System of Herbal Medicine Material**

The trading system of herbal medicinal products involves trading institutions, namely wholesalers, middlemen, and farmers. All of these marketing institutions have different roles. The herbal medicine trading system consists of 2 channels. The first channel, herbal medicinal ingredients supplied directly from farmers and wholesalers. The first trading channel is short consists of Farmers - Processors - Retail. Farmers in the first channel are from Sukabumi and Bogor. Farmers and trading actors sell herbal medicinal ingredients in dry form. Farmers also sell medicinal plants from their cultivation to the market, herbal medicine traders, and end consumers. Sales of medicinal plants adjusted to the desires of consumers. The second trading system consists of Farmers - Intermediaries - wholesalers - Taman Sringanis. Farmers in the second trade channel are farmers in Purwosari. Farmers sell in wet and dry form, then sell by intermediaries to wholesalers in the Beringharjo Market. Intermediaries are not only selling to wholesalers, but also the home industry of herbal medicine, and other intermediaries.

Wholesalers who buy from intermediaries sell herbs at Beringharjo Market. Figure 1 shows the trading channel of herbs for medicinal purposes.



**Figure 1.** Administration of Herbal Medicine Material Trading Channels

## 4.2. Trade Margin and Farmer's Share

### 4.2.1. Trading Margin

Analysis of the trading system margin is conducted in each channel, which consists of trading institutions. The Curcuma trading system and turmeric as raw material for natural medicines are listed in Appendix 1. Farmer's share is listed in appendix 2. The highest total margin is in the second trading channel, amounting to 1.192.000. The second trading channel has the most upper margin because, in this channel, many parties are involved in the distribution of herbal medicines from farmers to processors. The first trading channel has a total margin of 1.185.000. Farmers in the first trading channel sell directly to herbal medicine companies, it means only farmers are involved in trading. In the first trading channel 1, all production and marketing costs are borne by the farmers. Price-fixing in the first trading channel is higher, thereby affecting the margins obtained. High prices are set by farmers in the first trading channel to cover the costs already incurred by farmers. Based on the total margin value, it can be seen that the most efficient trading system channel is the trading system 1 with the lowest total margin value.

Farmer's Share: Farmer's Share is a comparison between prices received by producers and the costs paid by consumers. Farmer's Share on each trading channel of herbal medicinal ingredients is listed in appendix 2.

The largest Farmer's Share is obtained from the first trading channel, which has 1.25 percent. In the first trading channel, the farmer sells directly in dry form to the processor, so that all profits obtained in the first trading channel are all received by the farmer. The high Farmer's Share illustrates the high selling price from farmers to processors so that farmers can enjoy it. The second trading channel has a high selling price, which is because every trading agency receives a high margin value.

### 4.3. Herbal Medicine Supply Chain Performance

#### 4.3.1. Supply Chain Activities

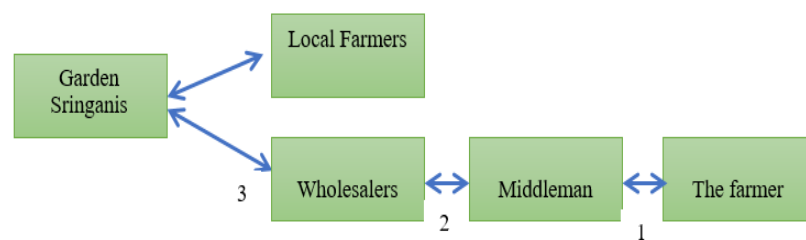
Herbal medicine ingredient supply chain consists of product flow, financial flow, and information flow. Information flow in the form of information about prices, availability of materials, and ordering and payment to suppliers. Figure 2 shows the flow of information on turmeric as a raw material for making herbs medicines.



**Figure 2.** Information Flow of Herbal medicines Ingredients

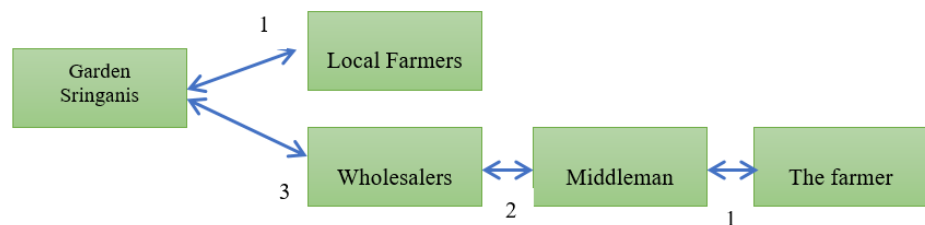
Information flow in the first trading channel, namely retailers, records herbal medicinal ingredients that will soon run out at the outlet. The notes are submitted to the production department of the processors. The production department makes purchases by ordering to farmers located in Bogor and Sukabumi. The information flow in the second trading channel is the same as

the information flow in the first trading channel. Still, in the second trading channel, the production department buys from the wholesalers in Beringharjo Market. The wholesalers make purchases to intermediaries in Gunungkidul, Slogoimo, and Purwantoro areas by ordering. The intermediaries collect from the farmers and then sell to wholesalers in Beringharjo Market. Figure 3 shows the flow of products delivered from farmers in Sukabumi, Bogor, Gunungkidul, Purwantoro, and Pacitan to other trading actors for further processing.



**Figure 3.** Product Flow of Herbal Medicines Ingredients

The product flow in the first trading channel is the farmers sending herbal medicines in dry form according to the order and then processed by the manufacturers/processors into herbal medicines. Herbal medicines products are sold at retail outlets. The second trade channel's product flow is farmers selling in the form of wet and dry to intermediaries. According to the order, then, the intermediaries send it in dry form to the big traders in Beringharjo Market. Wholesalers in Yogyakarta Beringharjo Market then send to processors according to orders received and processed as in the first trading channel. Financial flows are money flows for processing payments to suppliers. Figure 4 shows the financial flow of herbal medicinal ingredients.





#### **Figure 4.** Financial Flow of Herbal Medicines Ingredients

Financial flow in the first trading channel, namely, the processor pays a sum of money to farmers Sukabumi and Bogor for the order. Financial flow in the second trade channel, namely, the processor, spends a lot of money on wholesalers to order herbal medicines in the dry form. Large traders pay a sum of money to intermediaries, and then pay an amount of money to farmers for purchases in the wet or dry way.

#### **5. CONCLUSION**

There are two trade channels, namely: the first trading channel consists of farmers - processors - retail. The second trading channel consists of farmers - middlemen - wholesalers - processors - retail. The first trade channel obtains the most efficient marketing, shown from market performance, trading margin, and farmers' Share. Farmers do not have a profitable market. Therefore, it is necessary to have an institution that reasonably buys herbs from these farmers with reasonable prices and undemanding terms and conditions to help farmers getting the optimum benefit from the cultivation of herbs. The government should establish and provide assistance and training for herbal farmers so that farmers can process herbaceous plants into products that add more value to the market.

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## Appendix 1.

Table 1. Trading Margin for Herbal Medicines in Sringanis Park

| Institutional Agency Farmer | Trading Channel I (Rp / Kg) | Channel II (Rp/ Kg) |
|-----------------------------|-----------------------------|---------------------|
| Average Production Costs    | 4.787.81                    | 4.787.81            |
| Selling Price               | 15.000.00                   | 8.000.00            |
| Drying Fee                  | -                           | 250.00              |
| Marketing costs             | 3.368.83                    | 277.20              |
| Gain                        | 6.843.36                    | 2.684.99            |
| Margins                     | 10.212.19                   | 3.212.19            |
| <b>Brokers</b>              |                             |                     |
| Purchase price              |                             | 8,000.00            |
| Marketing Costs             |                             | 275.08              |
| Selling price               |                             | 14,000.00           |
| The advantage               |                             | 5724.92             |
| Margin                      |                             | 6.000.00            |
| <b>Wholesalers</b>          |                             |                     |
| Buy Price                   |                             | 14,000.00           |
| Marketing Costs             |                             | 384.83              |
| Selling price               |                             | 25,000.00           |
| The advantage               |                             | 10,615.17           |
| Margin                      |                             | 11,000.00           |
| <b>Taman Sringanis</b>      |                             |                     |
| Purchase Price              | 15,000.00                   | 25,000.00           |
| Production Costs            | 768,555.34                  | 768,555.34          |
| Marketing Costs             | 46,808,51                   | 46,808,51           |
| Selling Prices              | 1,200,000.00                | 1,200,000.00        |
| Profits                     | 369,636,15                  | 359,636.15          |
| Margins                     | 1,185,000.00                | 1,175,000.00        |
| Total Margins               | 1,185,000.00                | 1,192,000.00        |

## Appendix 2.

Table 2. *Farmer's Share* on Each Trading ChannelHerbal medicine ingredients

| No | Channelbusiness<br>administration | at Farmer Price (Rp /<br>kg) | in the rate of<br>Consumer Price (Rp/<br>kg) | <i>Farmer's<br/>Share (%)</i> |
|----|-----------------------------------|------------------------------|--|-------------------------------|
| 1  | I                                 | 15,000 00                    | 15,000.00                                    | 100.00                        |
| 2  | II                                | 8000.00                      | 25,000 .00                                   | 32.00                         |