

Analysis of The Marketing Efficiency of Curcuma in The Medicine Plant Processing Industry

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ABSTRACT

Farmers distribute curcuma through several marketing agencies to the sranganis plantation processing industry. It impacts farmers' income, so the research aims to determine the pattern of Curcuma marketing channels as a raw material for the medicinal plant processing industry, the value of efficiency indicators, and the level of efficiency of each marketing channel—methods of data collection using purposive sampling and snowball sampling. Respondents are farmers, middlemen, and managers of the sranganis plantation processing industry. The analytical approach uses quantitative analysis, namely analysis of marketing channels, marketing margins, farmer share, and marketing efficiency. The results showed that there were two patterns of Curcuma marketing channels, namely marketing Channel I, which included farmers and the sranganis plantation processing industry, and marketing Channel II which had farmers, intermediaries, wholesalers, and the sranganis processing industry. The marketing functions performed by all marketing agencies are exchange functions, physical functions, and facility functions. Farmer share obtained by marketing Channel I is more significant than Channel II, so marketing Channel I is more efficient than Channel II. The implication that farmers and the sranganis garden industry can apply is to enter into a cooperation contract where every profit and risk obtained has been adjusted by mutual agreement. Distance constraints for farmers who use marketing Channel II can be overcome by selling a portion of Curcuma produce to intermediaries with a proportion of 60%, and the remaining 30% is sold directly to the sranganis plantation processing industry.



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1. Introduction

Medicinal plants are horticultural commodities known as Indonesian cultural heritage. The use of medicinal plants is not only in the primary form (direct harvest form) but also in the secondary/simplest form (simple processing of the primary structure) and extracts (further processed results) (Salim & Munadi, 2017). The cultivation of medicinal plants has high market prospects. It can be seen from the growth of the natural medicine industry both at home and abroad and the back-to-nature lifestyle that society is currently living. The increase in consumption of medicines made from natural ingredients is marked by an increase traditional medicine industry (TMI) and natural material extract industry (NMEI) as plant agroindustry drugs that are widespread in cities and districts in Indonesia, especially in West Java Province—one of the cities that has a traditional medicine industry (IOT), namely Bogor City. The sringanis park processing industry is one of the IOT in Bogor City, which still preserves and produces various medicinal plants for public health. Sringanis park processing Industry has various products, with the primary raw material being Curcuma; an example of a product is herbal medicine.

Curcuma is one of the biopharmaceutical commodities that is often used in the natural medicine manufacturing industry. The increasing demand for curcuma has yet to be accompanied by increased production. Agricultural Statistics (2022) shows that Curcuma production has decreased by 14% from 2021 to 2022. It shows that the development of the curcuma natural medicine industry requires good production management, one of which is by measuring the success of the supply chain for the natural ingredient medicine industry. Supply chain performance measurement is done by looking at whether or not the raw material supply chain is running smoothly and the products' continuity.

One of the things that can be used as an indicator of marketing success is marketing efficiency so that the price of raw materials provided by producers to consumers becomes competitive (Budiono & Syaichu, 2016). The sringanis park processing industry still faces several obstacles in marketing its curcuma products, especially in providing raw ginger materials. So, the selling price of Curcuma products is still relatively high, and the processed products are still limited to meeting market needs in Bogor City—the sriganis park processing industry partners. The farmers are a supplier of Curcuma raw materials for their processed products. Farmers must use several marketing agencies to distribute their curcuma to the sriganis processing garden industry. It will impact the income that farmers and the sriganis park processing industry will obtain. The low income earned by farmers will cause farmers to refuse to plant Curcuma. If farmers are reluctant to plant, the sustainable supply of raw materials will be hampered, and their supply will not be guaranteed. Therefore, it is necessary to study the mechanism of Curcuma's commodity marketing activities so that the marketing of products made from Curcuma's raw materials is efficient and sustainable.

The role of Curcuma marketing actors is significant, namely its contribution to distributing raw materials to consumers or processing industries. The producer's income will be relatively small if the marketing channel is shorter in every movement of agricultural products from one marketing channel actor to another; there is a difference in product prices so that farmers' profits are low (Annisa et al., 2019). Therefore it is necessary to have an efficient marketing system (Piechowiak et al., 2020). An efficient marketing system is needed to ensure that agricultural products can provide benefits for farmers as the main actors (Rensburg & Mulugeta, 2016). Based on the description above, the purpose of this study was to analyze the marketing channel pattern of Curcuma as a raw material for natural medicine, analyze the value of Curcuma marketing efficiency indicators and analyze the level of efficiency of each pattern of Curcuma marketing channels that guarantee the sustainability of processing industry raw materials.

2. Methods

2.1. Location and Time of Research

The research location is the sranganis park processing industry, Bogor City, Indonesia. The sranganis park processing industry was selected randomly purposive because it is one of the medicinal plant industries in West Java, Indonesia that processes medicinal plants traditionally, and many of the processed products are made from ginger. Meanwhile, based on research conducted by the previous author, it was found that the locations of the farmers supplying curcuma raw materials were in Sukabumi Regency, Bogor Regency, Gunungkidul Wonogiri Regency, and Pacitan. This location is the largest production center for Curcuma in each province. The time of the research was conducted in March-August 2019.

2.2. Data Types and Sources

Primary data and secondary data are used in this study. Primary data is obtained from sources or objects related to research through observation field and direct interviews with supply chain actors using pre-prepared questionnaires. The primary data used in this study are data on the marketing flow of Curcuma, prices, costs of marketing Curcuma, and the profits taken by each marketer. Secondary data was obtained from various related literature from 18 previous research articles, 6 reference books, Curcuma production data from the Central Bureau of Statistics, the Ministry of Agriculture of the Republic of Indonesia, and other sources supporting research on ginger marketing efficiency.

2.3. Data Collecting

Respondents were taken using purposive sampling and snowball sampling methods. Purposive sampling was carried out to determine the location of the natural medicine industry, namely the sranganis park processing industry. Data tracking starts from the sranganis park processing industry to the farmers who are carried out using a questionnaire to find out the marketing channels of Curcuma and the cost efficiency obtained with interview techniques and field observations by observing every marketing activity at the research location. The snowball sampling method was used to determine the respondents of wholesalers, intermediaries, and farmers, along with the amount traced based on the results of interviews with previous marketers.

2.4. Data Analysis

The analytical method used is quantitative data analysis. Marketing efficiency and added value were analyzed quantitatively without treatment. Marketing efficiency analysis includes marketing margins and farmer share. Data processing in this study uses the Microsoft Excel program. Meanwhile, the supply chain activities of Curcuma as a raw material for making natural medicine in the sranganis park processing industry are explained descriptively.

2.5. Marketing Efficiency Analysis

2.5.1. Marketing Margin

According to Asmarantaka (2012), The following formula can be used to calculate the marketing margin based on the price differential between the farm level (Pf) and the ultimate consumer level (Pr):

$$MT = Pr - Pf$$

Note :

MT : Total Margin

Pr : Price at a retail level
(end consumer)

Pf : Prices at the farm level

While each marketing agency's profit is determined using the following formula:

$$Wed = P_{\text{from the-}} - P_{\text{with a}}$$

Note :

Me : Marketing margin level
the- i, where $i = 1, 2, \dots, n$

$P_{\text{from the}}$: Sales price for
marketing agency i

$P_{\text{with a}}$: Purchase price for
marketing agency i

2.5.2. Farmer's Share

$$Fs = \frac{Pf}{Pr} \times 100\%$$

Note :

Fs: Part of the price received
farmers (Rp/Kg)- in IDR

Pf: Prices at the farm level
(Rp/Kg)-in IDR

Pr: Prices at the consumer level
(Rp/K)-in IDR

Marketing Efficiency Marketing efficiency can be calculated using the marketing efficiency formula (Ep) Downey dan Erickson (1992) as follows:

Ep= Marketing Costs/ Marketed Product Value

Decision Rules: 1. Ep > 1 means inefficient 2. Ep < 1 means efficient (Downey & Erickson, 1992).

3. Results and Discussion

3.1. Results

3.1.1. Marketing Channel Pattern Analysis

The marketing channel pattern of Curcuma to the sranganis parkprocessing industry consists of 2 channels. Figure 1 shows the pattern of Curcuma marketing channels in the sranganis parkprocessing industry.

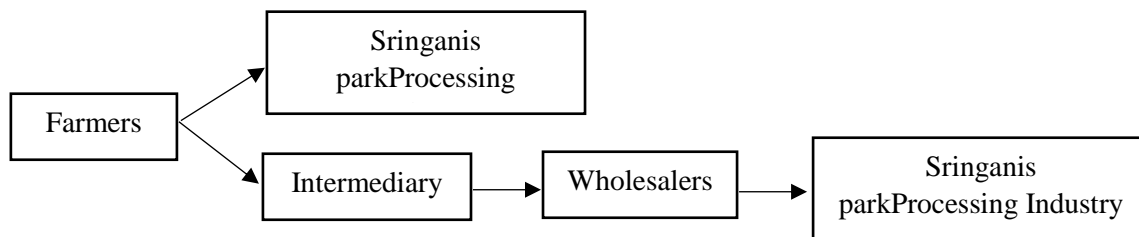


Figure 1. Pattern of curcuma marketing channels to the Sringanis Parkprocessing Industry, 2019

Patterns of marketing Channels 1 and 2 have the same goal for the Curcuma processing industry in srenganis park. Marketing Channel 1 shows farmers directly selling their curcuma to the srenganis park processing industry. The price received by farmers selling directly to the srenganis park processing industry is higher because the farmers carry out the harvesting and sorting activities. Meanwhile, in marketing Channel 2, farmers sell their curcuma products through intermediaries at lower prices than farmers selling directly to the srenganis park processing industry. Furthermore, the intermediaries will sell their curcuma to wholesalers at a higher price because the intermediaries carry out the sorting and grading activities. After that, the intermediaries sell their curcuma to the srenganis park processing industry.

3.1.2. Functions - Marketing Functions

Each Curcuma marketing agency has its trade administration function. The marketing function can be identified based on the main activities carried out by each trading system. Besides that, the marketing function is to facilitate the delivery of a product from producers to consumers and is usually carried out to reduce barriers related to distance and time. Marketing functions can be grouped into physical, facility, and exchange functions. The marketing function of each curcuma marketing agency in sringanis park is listed in Table 1.

Table 1. Marketing functions at each Curcuma marketing agency in Sringanis Park

No	Marketing Institute	Marketing Function	Activity
1	Farmer	Exchange Physique	Sale Transport, storage, and processing Market information, risk bearers, and financing
2	Intermediary	Facility Exchange Physique	Buying and selling Transport, storage, and processing Market information, risk bearers, and financing
3	Wholesalers	Facility Exchange Physique	Buying and selling Transport, storage, and processing Standardization and grading, market information, risk sharing, and financing
4	Taman Sringanis	Facility Exchange Physique Facility	Buying and selling Transport, storage, and processing Standardization and grading, market information, risk sharing, and financing

Source: Primary Data processed in 2019

Intermediaries, as marketing institutions, carry out three marketing functions: the exchange function, meaning that intermediaries buy curcuma products from farmers and then resell them to wholesalers. The physical functions of intermediaries are storing, transporting, and processing curcuma, such as drying and washing before being sold to wholesalers. In addition, intermediaries also carry out the function of facilities by informing farmers of the latest prices, assuming the risk of not being sold or physically damaged, and financing through curcuma buying activities to farmers.

The following marketing agency is wholesalers. The exchange function carried out by wholesalers is to buy curcuma products from intermediaries and resell them to sringanis park. The physical functions performed by wholesalers are storage, transportation, and processing. The facility function is also carried out by wholesalers in the form of standardizing curcuma, which will be sold to sringanis park based on the quality grade of ginger, informing the price to intermediaries, assuming risks, and financing the risks they face. Like wholesalers, the sringanis processing garden industry also performs these three marketing functions. However, the difference is that sringanis park sells curcuma in processed products to end consumers. sringanis park carries out the transportation, storage, and processing of products as a physical function and facilitates quality standards for curcuma products to consumers.

3.1.3. Marketing Margin

Marketing margin analysis looks at each channel divided into trading system institutions. Marketing margin includes the amount of marketing costs and profits. The marketing margin of Curcuma as raw material for natural medicine in Sringanis Park is shown in Table 2.

Table 2. Margin of Curcuma marketing as raw material for natural medicine in Sringanis Park

No	Trade System Institute	Marketing Channel I (Rp/Kg), in IDR	Marketing Channel II (Rp/Kg), in IDR
1	Farmer		
	Average Production Cost	4.787,81	4.787,81
	Selling price	15.000,00	8.000,00
	Drying Cost	-	250,00
	Marketing Expenses	3.368,83	277,20
	Profit	6.843,36	2.684,99
	Margin	10.212,19	3.212,19
2		Middleman	
	Purchase Price		8.000,00
	Marketing Expenses		275,08
	Selling price		14.000,00
	Profit		5.724,92
	Margin		6.000,00
3		Wholesalers	
	Purchase Price		14.000,00
	Marketing Expenses		384,83
	Selling price		25.000,00

Profit		10.615,17
Margin		11.000,00
4 Taman Sringanis		
Purchase Price	15.000,00	25.000,00
Total Margin	10.212,19	20.212,19
Total Cost	3.368,83	1.187,11
Total Profit	6.843,36	19.025,08
Farmer profits	6.843,36	2.684,99

The highest total margin is in marketing Channel II, IDR 20,212.19/kg. Marketing Channel II has the most considerable margin because many parties are shipping curcuma from farmers to sringanis park; this channel has the highest profit margin. Marketing Channel I have a total margin value of IDR 10,212.19. Farmers in marketing Channel I market curcuma directly to sringanis park so that only farmers are involved in marketing activities. Farmers bear all production and marketing costs in marketing Channel I. In addition, the pricing in marketing Channel I is higher, which affects the margins earned. Farmers in the marketing Channel I set high prices to cover the costs already incurred by farmers. Based on the total margin value, the most efficient marketing channel is marketing Channel I, with the lowest total margin value and the highest farmer profit. Farmers carry out Channel I marketing, namely farmers located in Bogor Regency, which is relatively close to the location of the processing industry, so that they can carry out direct marketing.

3.1.4. Farmer's Share

Farmer's share is the ratio between the price received by producers and the price paid by consumers. Farmer's share for each marketing channel of Curcuma as a raw material for natural medicine in sringanis park is shown in Table 3.

Table 3. Farmer's share in each marketing channel of Curcuma as raw material for natural medicine in Sringanis Park

No	Trade Channels	Prices at Farmer Level (Rp/Kg) in IDR	Price at Processing Industry Level (Rp/Kg) in IDR	Farmer's share (%)
1	I	15.000,-	15.000,-	100 %
2	II	8.000,-	25.000,-	32 %

Farmer's share value one hundred percent of marketing Channel I's output produces the most. Farmers receive all gross income from marketing Channel I because they sell dried curcuma directly to sringanis park in this marketing channel. Farmer's dividend the high cost reflects the high cost incurred by farmers to sell their curcuma to sringanis park so they can consume it. Because dried curcuma gets a significant margin value in every marketing agency, marketing Channel 2 is a marketing channel with a high selling price.

3.1.5. Marketing Efficiency

Value-based marketing efficiency Downey and Erickson (1992) on the two marketing patterns of Curcuma to the sringanis park processing industry are presented in Table 4.

Table 4. Value of marketing efficiency in each marketing channel of Curcuma as raw material for natural medicine in sranganis park

No	Trading Channel	Marketing Cost (Rp/Kg)-in Rupiah	Marketed product value (Rp/Kg)-in Rupiah	Marketing Efficiency
1	I	3.368,83 ,-	15.000,-	0,23
2	II	1.187,11,-	25.000,-	0,05

Based on the value of marketing efficiency, information is obtained that both marketing Channel I and marketing Channel II are included in the Efficient category because the efficiency value is less than 1 (Downey & Erickson (1992)). In marketing Channel I, the efficiency value is 0.23; in marketing Channel II, the value is 0.05. It shows that the marketing cost per kilogram of Curcuma is less than the product's value, which is considered efficient.

3.2. Discussion

The results of the analysis show that there are two patterns of marketing channels. Sranganis farmers and the processing sector are involved in marketing Channel I; meanwhile, marketing Channel II involves four marketing actors: farmers, intermediaries, wholesalers, and processing industries. In the first marketing channel, Curcuma farmers were in Bogor and Sukabumi regencies, while in Channel II, farmers were in Wonogiri and Pacitan, Gunungkidul Regencies. The marketing distance of Channel II is relatively far compared to Channel I, so intermediary institutions are needed, namely intermediaries and wholesalers. It is expressed by Amin et al. (2016) in their research on Curcuma marketing which states that the distance between producers and consumers causes marketing institutions to play an essential role in distributing Curcuma. The more Curcuma marketing agencies are involved, the longer the Curcuma marketing chain and the marketing margin will be higher.

Furthermore, it is known that there is a difference with Saptarini et al. (2018) research states that the marketing channels used in distributing products from producers to consumers will determine the costs incurred by marketing agencies. In other words, the process of production activities into dry corn in the marketing system costs money. The difference lies in the cost in Channel I is higher than in Channel II. It occurs because the volume of transactions used to allocate processing and physical book transportation is small. In contrast, in Channel II, the volume is significant, so the cost per kilogram becomes cheaper. Marketing efficiency can also be seen from the short marketing channels. The most efficient marketing channel can be seen from the short length of product marketing activities. The longer the marketing activities, the more inefficient the marketing will be (Wulandari et al., 2018). Based on this, the Curcuma marketing channel on Channel I is more efficient than marketing Channel II.

Based on Table 2, the size of the marketing margin in Channel II is more significant than in Channel I; this shows that the more marketers, the higher the marketing margin because each marketer will take advantage. As concluded in research by Ali et al. (2018), the title Analysis of cabbage marketing efficiency in Gisting District, Tanggamus Regency, marketing margins still tend to be high with the increasing number of marketing actors involved.

Jumiati et al. (2013) mention that the marketing costs depend on the length of the marketing channel. It follows the results of the study by Pradana (2017) regarding the study of business analysis and marketing efficiency of melon (*Cucumis melo L*) in Karanganyar Regency. The results of this study are different from research on Curcuma marketing. The difference lies in the commodity; melon has a high risk due to its low shelf-life, while curcuma has a relatively long shelf-life, so even though the marketing chain is longer (marketing Channel II), the marketing costs are cheaper. In addition, the low cost of marketing Curcuma is also due to the relatively large volume of marketing transactions, which saves on processing and transportation costs.

A farmer's share is an indicator of the comparison between the prices received by farmers and the prices given by final consumers. It is usually expressed in the form of a percentage. Farmer's share negatively affects marketing margins (Rahmadani et al., 2018). Therefore, the higher the marketing margin, the smaller the farmer's share (Fahrurrozi et al., 2015). Table 3 shows that farmers' share in Channel I gets 100% of the share, while in Channel II, farmers get 32%. Channel I is an efficient marketing channel because it has exceeded 50%, while Channel II could be more efficient because it is less than 50%. It follows the statement from Kim et al. (2014) and Sunarto (2017)) that the farmer's profit is less than 50% means marketing is not efficient, and if the farmer's yield is more than 50%, marketing is said to be efficient. The variation of marketing efficiency based on the farmer's share value is the same as the conclusion of research from Pradana (2017), which shows that in the melon marketing channel in Karanganyar Regency, there are two efficient marketing channels with a farmer share value of 62.37% and 59.78%. There is one inefficient marketing channel with a farmer share value of 40%.

Marketing margin, profit margin, farmer's share, and marketing efficiency are measurement tools that can be used to measure the level of marketing efficiency (Zahra & Dahlia, 2021; Sumantri et al., 2022). An effective marketing channel system occurs when the marketing margin level is higher than 50% of the price level paid by consumers, so the value of the marketing margin is used to measure how effectively the system works. The marketing margin value could be more efficient the bigger it is. Farmers' share decreases as marketing margins increase (Riswandi & Oktariza, 2015).

3.2.1. Marketing Efficiency

Marketing efficiency can be calculated from the ratio of marketing costs to the total product value (selling price). The size of the marketing costs is influenced by transportation, the risk of damage, the distribution of production sites, and the number of official and unofficial levies between producers and consumers. The increase in consumer income and welfare also cause marketing roles and functions to become more complex, resulting in high marketing costs that must be incurred. The higher the marketing costs, the lower the product price level at the producer level (Suminartika & Djuanalina, 2017).

Marketing efficiency is one measure of good marketing that occurs. Marketing activities aim to get the maximum profit or profit and a good level of efficiency. Inefficient marketing systems produce a small share of what farmers or producers earn (Nurhayati et al., 2020; Arafah et al., 2017). Marketing efficiency is essential for producers and marketers to achieve maximum profit. One way to determine indicators of marketing efficiency is to find out how much of the farmer's share is received by each marketing channel. Therefore, this research needs to be conducted to determine how much percentage the farmers receive and how the marketing channel forms the final consumer or refiner (Erzal, 2016).

Table 4 shows that the marketing efficiency value of Curcuma in a channel I have a marketing efficiency value of 0.23 while pattern II has a value of 0.05. It indicates that the two marketing channels are said to be efficient because the value is less than 1. It follows Suhaeni and Andayani (2020) regarding the level of channel efficiency and marketing of shallots in the Majalengka Regency. Based on the analysis results, the marketing efficiency value of the shallot marketing channel chain in Majalengka Regency ranges from 0.02 to 0.09. A marketing channel is considered efficient if the efficiency value is < 1 and inefficient if the efficiency value is > 1 . If seen from the efficiency value of each shallot marketing channel pattern, all of the marketing channel patterns are categorized as efficient.

4. Conclusion

Marketing Channel I of Curcuma in the sranganis processing garden industry is shorter than marketing Channel II. The marketing functions carried out by all marketing agencies are exchange functions, physical functions, and facility functions. The farmer share obtained in marketing Channel I is greater than the farmer share in marketing Channel II with a difference of 68%, so marketing Channel I is more efficient than marketing Channel II. The implication that farmers and the sranganis garden industry can apply is to carry out a cooperation contract where every profit and risk obtained has been adjusted by mutual agreement. Distance constraints for farmers who use marketing Channel II can be overcome by selling some of their curcuma results to intermediaries with a proportion of 60%, and the remaining 30% can be sold directly to the sranganis garden processing industry.

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