Marketing efficiency of curly red chilli in Karo District

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Abstract. The problem with chilli commodity is the high price fluctuation and unequal price difference at the producer farmer level and the price at the consumer level. This is because the trade chain passed from producers to consumers is quite long, involving many actors, and becoming a cost burden in the marketing process which will ultimately reduce the profit of the marketing chain. This study aimed to see the current description of the curly red chilli marketing channel and to analyse the efficiency of each marketing channel based on marketing margin and farmer’s share. This study used a descriptive analysis method, in which qualitative data was used to analyse the established marketing channels and quantitative data were used in analysing the operational efficiency of marketing using Microsoft Excel 2007 and data tabulation. The results showed that there were 3 marketing channels of curly red chilies commonly passed by farmers in Karo Regency, namely: 1. Farmers → Brokers → Collectors → Retailers → Final Consumers, 2. Farmers → Collectors → Retailers → Final Consumers, 3. Farmers → Brokers → Collectors → Retailers → Final Consumers. Channel II is more efficient because it is used by 52.81% of farmers.

1. Introduction
Chilli (Capsicum annuum L) is one of the vegetable commodities having a high enough economic value. The demand for chilies is quite high and relatively continuous, with an average of 4.6 kg per capita per year [1]. So that it is a potential horticultural commodity to be developed. In addition, red chilli for the Indonesian people is the main spice in cooking. The spicy taste of chilli has become a characteristic of Indonesian cuisine, and almost all Indonesian dishes include chilli as a cooking spice. Red chilli agribusiness is a promising source of income for the community, especially farmers, given its relatively high selling value and the potential for increasing market absorption [2].

Marketing of chilli starts from producers (farmers) to final consumers (households). There are many parties involved, namely farmers as producers, collectors, dealers, traditional market traders, wholesale market traders, large retail market traders, small retail traders, and industry. The power of determining the price is at the dealer level, in the central market (agribusiness terminal). The capital factor becomes the power to influence price. Apart from the large capital factor as an entry barrier to the chilli market, there is also a chilli supply factor that is not easy to predict [3]. In addition, apart from fluctuating price, there is also a price difference between the price at the producer farmer level and the price at the consumer level. This is because the trade chain passed into the hands of consumers is quite long. The length of this chain causes trading costs to become a burden on the costs of the marketing process, which consequently will reduce the profit of the marketing chain [4].
The flow of products from farmers to consumers in the marketing process of agricultural products will create a series of so-called marketing channel. This marketing channel is very important for producers because producers will not be able to distribute their products into the hands of consumers without this channel. In general, to distribute products to consumers, producers need marketing intermediaries. The marketing channel is a path followed in transferring ownership directly or indirectly to a product, and then the product will move from the producer to the final consumer or industrial user [5]. Some of the marketing channels are long and some are short. Seeing this fact, the role of marketing is very important for the sustainability of red chilli farming, so that a decent price can be accepted by producers.

The involvement of middlemen will cause the price received by producer farmers and the price paid by consumers to be much different. This is due to the functions that must be performed by intermediaries, namely the exchange function, the physical and logistical supply function, and the facilitating function which results in marketing costs [6]. The marketing costs, usually by intermediaries, will be charged to consumers and producers.

Karo Regency is one of the central areas of curly red chilli in North Sumatra, so this research needed to be done to find out the current picture of the curly red chilli marketing channel, which was considered the best by the farmers.

2. Methods

2.1. Method of collecting data
The selection of the research location was carried out deliberately (purposive sampling), namely in Karo Regency with the consideration that Karo Regency was one of the production central of Curly Red Chilli in North Sumatra. Implementation time was from July 2020 to August 2020.

The population in this study was 780 farmers, who were planting curly red chilli with the respondent criteria were farmers who were dominant in cultivating curly red chillies compared to other vegetable commodities and had experience of planting red chillies for at least 5 years with a minimum planting area of 0.5 Ha. By using the Slovin formula with an error rate of 10%, it was obtained 89 respondents.

The determination of the traders’ sample utilized snowball sampling method. This method was used due to the reason that the population was not known and the sample was taken from the original merchant when the Curly Red Chilli product was first released from the producer. The samples of traders appointed were traders who were really directly involved in the trading of Curly Red Chilli in Karo Regency and knew the flow of Curly Red Chilli from producers to consumers, namely 11 traders.

The data used were primary data obtained from questionnaires and interviews with farmers and traders, and secondary data were obtained from the Karo District Agriculture Office, Food Crops and Horticulture Service of North Sumatra Province, Central Bureau of Statistics in Karo, and the Indonesian Ministry of Agriculture.

2.2. Data analysis method
This research used descriptive analysis method. Qualitative data was used to analyse the marketing channel formed in the process of delivering curly red chilli to the end consumers. This marketing channel described the marketing channel patterns occurring.

Meanwhile, quantitative data used in analysing the operational efficiency of marketing were based on marketing margins and farmer's share of each marketing channel formed using Microsoft Excel 2007 and data tabulation.

The value of total marketing margin (MT) can be interpreted as the difference between the price paid by consumers and the price received by producers. Mathematically, it can be obtained by the following calculation [7].
\[ MT = Pr - Pf \] (1)

In which:
MT: The total marketing margin of curly red chillies
Pr: Price of curly red chillies at the consumer level (IDR/kg)
Pf: Price of curly red chillies at the farm level (IDR/kg)

Farmer’s share according to [8] is the ratio between the price at the farmer level to the price at the merchant level. [9] suggests that to measure marketing efficiency, the farmer's selling price is used as the base price (Pf), which is divided with the purchase price of traders at the final consumer level (Pr), then multiplied by 100 percent. The mathematical calculation of farmer's share is as follows:

\[ FS = \frac{Pf}{Pr} \times 100\% \] (2)

In which:
FS: The share of the price received by chilli farmers (IDR/kg)
Pf: Price of chilli at farmer level (IDR/kg)
Pr: The price of chilli at the consumer level (IDR/kg)

3. Results and discussion

There were 3 general marketing channels for red chilli in Karo Regency, namely:
I. Farmer → Broker → Collector → Retailer → Final Customer
II. Farmer → Collector Trader → Retailer Trader → Final Customer
III. Farmer → Broker → Collector → Retailer → Final Consumer.

Channel I started with a farmer selling curly red chilli to intermediary trader in his village. Channel I was relatively much in demand by farmers, namely 25.09%, considering that channel I was widely used by red chilli farmers in villages that were quite far from the market. In general, farmers did not bring the chillies to the market but they collected them at intermediary traders in the village before being transported by the collecting traders in the afternoon around 05.00 - 07.00 pm and then they brought them to the Medan, Binjai and Aceh Central Markets.

Intermediary traders did not set price to farmers, the ones who determined price were collectors. The intermediary traders only received a commission/service from the collector traders as the collectors of agricultural commodities in the village according to the order from the collectors of IDR 200,000 to IDR 300,000 per day for all commodities collected, those which were not only red chillies such as potatoes, tomatoes, cabbages and other vegetables in the village. The prices of red chilli and other commodities in channel I were lower than channel II and III. In one day, these collectors would transport agricultural commodities ranging from 2.5 tons to 3 tons using Pickup L300.

Channel II was the channel most used by farmers, namely 52.81%, starting with farmers bringing red chillies to the market and selling to collectors in markets such as Roga market, Tigapanah market, Singa market and Lau Gendek market. In general, the collector traders were local sub-district traders and usually lived not far from the farmers’ house.

Collector traders bought red chillies directly from farmers in large quantities (from several farmers) ranging from 100 kg - 800 kg and sold them back to wholesalers for the central markets of Medan, Aceh, Asahan and Rantau Prapat. Wholesalers did not meet directly with farmers, so Red chillies purchased from collector traders were higher than the price at farmers because collectors took part/profit by increasing the chilli price by IDR 500 to IDR 1,000 per kg. In general, collector traders were familiar and had regular subscriptions with these wholesalers, so that collector traders would buy as much red chillies as requested by the wholesalers every day.

Channel III started with the farmers brought red chillies to the market and sold them to intermediary traders in markets such as Roga market, Tigapanah market, Singa market and Lau
Gendek market. Generally, these intermediary traders only expected commissions/services from collector traders. In other words, these intermediary traders did not have the capital to buy red chillies. Intermediary traders would bring red chillies to collectors who had provided them with capital to collect red chillies according to the agreed quantity and price, and generally in small quantities of around 20 kg - 50 kg of red chillies.

Table 1. Percentage of curly red chilli farmers in Karo District according to channel type selected marketing.

|                | Channel I | Channel II | Channel III |
|----------------|-----------|------------|-------------|
| The Number of Farmers | 25        | 47         | 17          |
| Percentage     | 28.09%    | 52.81%     | 19.10%      |

Table 2. Marketing margins of 3 marketing channels of curly red chilli in Karo District.

| No | Description       | Price (IDR/kg) | Margin (IDR/Kg) |
|----|-------------------|----------------|-----------------|
| A. | Channel I         |                |                 |
| 1. | Farmer Selling Price | 14,000         |                 |
| 2. | Brokers           | Fees for many commodities |         |
| 3. | Collectors        |                |                 |
|    | - Purchase Price  | 14,000         |                 |
|    | - Sales Price     | 17,00          | 3,000           |
| 4. | Retailers         |                |                 |
|    | - Purchase Price  | 17,00          |                 |
|    | - Sales Price     | 2,000          | 5,000           |
| B. | Channel II        |                |                 |
| 1. | Farmer Selling Price | 19,000         |                 |
| 2. | Collectors        |                |                 |
|    | - Purchase Price  | 19,000         |                 |
|    | - Sales Price     | 21,000         | 2,000           |
| 3. | Retailers         |                |                 |
|    | - Purchase Price  | 21,000         |                 |
|    | - Sales Price     | 25,000         | 4,000           |
| C. | Channel III       |                |                 |
| 1. | Farmer Selling Price | 14,000         |                 |
| 2. | Brokers           | Fees for many commodities |         |
| 3. | Collectors        |                |                 |
|    | - Purchase Price  | 19,000         |                 |
|    | - Sales Price     | 21,000         | 2,000           |
| 4. | Retailers         |                |                 |
|    | - Purchase Price  | 21,000         |                 |
|    | - Sales Price     | 25,000         | 4,000           |

The collector traders in channel III did not only buy red chillies from intermediary traders, but they also bought several other horticultural commodities such as potatoes, tomatoes, cauliflower, broccoli,
beans, carrots and other vegetables in small quantities. In one day, these collectors would transport horticultural commodities ranging from 2.5 tons to 3 tons using Pickup L300 for the central markets of Medan, Siantar, Tanjung Balai, Bagan Siapi-api, Rantau Parapat and market needs in Karo Regency.

Wholesalers did their buying activities not only focused on red chillies, but also other vegetable commodities such as cabbage, green chilli peppers, potatoes, carrots and other leafy vegetables. Wholesalers in wholesale markets and other destination cities sorted the curly red chillies they had bought from collectors before selling them to retailers.

From wholesalers, the curly red chillies would be sold to retailers. The prices occurring between wholesaler and retailer fluctuated every day and even per hour. This depended on the amount of supply and demand in the market. From retailers the curly red chillies would be sold to the final consumers.

Table 3. Efficiency of 3 marketing channels of curly red chilli in Karo District.

| No | Description | Price (IDR/kg) | Margin (IDR/Kg) | Efficiency (%) |
|----|-------------|----------------|-----------------|----------------|
| 1. | Channel I   | 14,000         | 22,000          | 63.64          |
| 2. | Channel II  | 19,000         | 25,000          | 76.00          |
| 3. | Channel III | 19,000         | 25,000          | 76.00          |

The share of price received by farmers in each marketing channel is 63.64% for channel I and 76% for channels II and III. So, channels II and III are more efficient than channel I because the share of prices received by farmers in channels II and III is greater, but if it is seen from the percentage of the number of farmers using channel II of 52.81% compared to channel III, then channel II is more efficient.

4. Conclusions
There were 3 marketing channels for curly red chilli in Karo Regency, namely Farmers → Brokers → Collectors → Retailers → Final Consumers, Farmers → Collectors → Retailers → Final Consumers, Farmers → Brokers → Collectors → Retailers → Final Consumers. Channel II is used by 52.81% of farmers, channel I is 28.09% and channel III is only 19.10%. The marketing margin on channel I is IDR 5,000 while the marketing margin on channel II and III is the same as IDR 4,000. And the share of price received by farmers in each marketing channel is 63.64% for channel I and 76% for channels II and III. So operationally, channel II is more efficient because it is used by 52.81% of farmers. Channel I occurred in villages where the collectors came to the village to buy curly red chilli along with other horticultural commodities. Channels II and III generally occurred in 4 markets in Karo Regency, namely Roga Market, Tigapanah Market, Singa Market and Lau Gendek Market.

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