Analysis of marketing efficiency of shallot (Allium ascalonicum L.) in Karanganyar Regency

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Abstract. The research aimed to analyze the marketing efficiency of shallot in Karanganyar Regency, Central Java. The study used the snowball sampling method, which consisted of farmers, collectors, traders, and consumers. Samples in this research are 120 shallot farmers with questionnaires. The data analysis consists of descriptive marketing funnel analysis, marketing margin analysis using the cost, profit, and marketing margin formula calculations, marketing efficiency analysis economically using marketing margin percentage, and farmer's share. The results indicate that there are four marketing funnels for shallot: (1) Farmers - market traders - retailers - consumers (2) Farmers - collectors - market traders - retailers - consumers (3) Farmers - collectors - market traders outside the city - consumers outside the city (4) Farmers - collectors outside the city - consumers outside the city. Based on the farmer's share value results, the most efficient in this study was marketing funnel four. It has the highest farmer share value of 88.83% and occurs when shallot farmers sell products directly to final consumers. Farmers are better off offering shallots ready to be sold to the final consumer, so the price offered can be high.

1. Introduction

One of the most sought-after horticultural commodities because it is used for the daily needs of the Indonesian people is shallots. Shallots (Allium ascalonicum L.) is a horticultural commodity classified as a spice vegetable and is widely needed, especially as a complement to cooking spices to increase the taste and enjoyment of food. Shallots have many benefits because they contain carbohydrates, sugars, fatty acids, proteins, and other minerals needed by the human body [1]. The many uses and benefits of shallots make red onions much needed and sought after by the people of Indonesia. In addition, although shallots are used in small quantities for basic cooking spices, if required by almost the entire community.

One of the Regencies in Central Java Province that cultivates shallots is Karanganyar Regency. Based on Central Java in Figures for 2020, Karanganyar Regency ranks in the top 2 with a total production of 31,260 tons after Boyolali Regency in the former residency of Surakarta, covering Karanganyar, Surakarta City, Sragen, Wonogiri, Sukoharjo, Klaten, and Boyolali Regency. This data shows that Karanganyar Regency has an important role in supplying shallots in the former Surakarta Residency.

Shallots are one of the high-value horticultural commodities so that many farmers cultivate them. Generally, the number of shallot farmers is greater than the number of existing collectors, so that the
position of farmers is as a price receiver, not as a price taker [2]. This position will make the price paid by the final consumer received by farmers being low. Another problem is that farmers still need facilities from traders to distribute their products to the final consumer so that the marketing funnel becomes long. This problem causes the prices received by farmers to be low, and the marketing system becomes inefficient. The purpose of this study was to analyze the efficiency of the shallot marketing system in Karanganyar Regency.

2. Methodology
The research location was determined purposively: Segorogunung Village, Ngargoyoso District, Berjo Village, Ngargoyoso District, Blumbang Village, Tawangmangu District, and Kalisoro Village, Tawangmangu District, Karanganyar Regency. The research was conducted by survey method, and sample determination was carried out by snowball sampling method. The samples in this study were 120 shallot farmers and 16 traders consisting of collectors, market traders, and retailers. The time of the research was carried out in May–July 2021.

The shallot marketing funnels in Karanganyar Regency were analyzed descriptively qualitatively to all market participants involved in funneling goods from producers to final consumers. The economic efficiency of each shallot marketing funnel can be calculated by the percentage value of the marketing margin and the percentage of the share received by shallot farmers (farmer's share). The percentage value of the marketing margin from each marketing funnel was calculated using the following formula is used:

\[ Mp = \frac{Pr - Pf}{Pr} \times 100\% \]  

Information:
Mp : Marketing margin of shallot
Pr : Price shallots at the consumer level
Pf : Price of shallots at the producer level

Measurement of economic efficiency, marketing margin is often used as a measuring tool. It is possible to analyze the marketing margin and consider the share received by the farmer (farmer's share) to determine the efficiency of a marketing system [3]. The share received by shallot producers can be calculated using the formula:

\[ F = \left[ 1 - \frac{Mp}{Pr} \right] \times 100\% \]  

Information :
F : The share received by shallot producers
Mp : Shallot marketing margin
Pr : Price of shallots at the consumer level.

Farmer's share analysis is used to determine the share of the price received by the producer (shallot farmers) from the price paid by the final consumer. The higher the farmer's share, the better the marketing performance from the producer's side [4].

3. Results and discussion

3.1. Characteristics of respondent farmers
Respondents in this study comprise 120 respondent farmers. The number of respondent farmers in each village is 30 people. The shallot farmers in question carry out shallot marketing activities or are not used for their consumption. The characteristics of the respondent shallot farmers are varied, which can be seen in Table 1.
Table 1. Respondent's shallot farmer identity

| No | Farmer Identity                  | Amount | Percentage (%) |
|----|----------------------------------|--------|----------------|
| 1. | Average age (years)              |        |                |
|    | a. Age <14 years old            | 0      | 0              |
|    | b. Age 15-64 years              | 106    | 88.3           |
|    | c. Age >65 years                | 14     | 11.6           |
|    | Amount                           | 120    | 100            |
| 2. | Level of education               |        |                |
|    | a. No school                     | 2      | 1.67           |
|    | b. SD                            | 29     | 24.17          |
|    | c. junior high school            | 45     | 37.50          |
|    | d. SMA/SMK                       | 42     | 35             |
|    | e. College                       | 2      | 1.67           |
|    | Amount                           | 120    | 100            |
| 3. | Average area of shallot plantations (Ha) | 0.146 | -              |

Based on the respondent's identity table, it can be seen that the average shallot farmers are aged 15 – 64 years, as many as 106 farmers. The majority of respondent farmers are of productive age [5]. There is an old age group (> 65 years) of shallot farmers as respondents amounting 14 people. According to the respondent's education level, farmers varied, with the highest level of education being junior high school graduates. This finding shows that people are still trying to gain knowledge by following existing formal education. The average area of land owned by the respondent shallot farmers is 0.146 ha. The land owned by the respondent farmers is varied. Respondent farmers use their land for farming with shallots as well as rotate with other commodity crops. Respondent farmers, according to land tenure status, it can be seen that most respondent farmers own their land. Shallot farmers with the status of their land are 114 farmers. There were no respondent farmers with profit-sharing land status in this study. Shallot farmers with land status rent as many as 6 farmers. Land ownership status is one of the determinants of the amount of harvest and costs incurred by farmers when carrying out farming activities. Shallot farmers with the status of their own land are 114 farmers. There were no respondent farmers with profit-sharing land status in this study. Shallot farmers with land status rent as many as 6 farmers. Land ownership status is one of the determinants of the amount of harvest and costs incurred by farmers when carrying out farming activities.

3.2. Characteristics of respondent traders

Traders involved in marketing shallots can assist farmers in selling their crops. Traders act as distributors of goods from producers to consumers. This study conducted a market search that occurred from shallot farmers. The number of traders found in this study was 16 traders. Table 2 shows the identity of shallot marketing traders in Karanganyar Regency.

The respondent traders of this research are divided into three status traders, namely collector traders as many as 5 people, market traders as many as 5 people, and retailers as many as 6 people. The average age of respondent traders is 51 years to be grouped into productive age (15–64 years) [5]. The education level of the respondent traders in this study varied, namely, 2 people did not go to school, 7 people graduated from junior high school and 7 people graduated from high school. Collector traders are a marketing institution that is a destination for farmers to sell their shallots. The marketing agency has various activities such as product sorting, product cleaning, and found collectors in Blumbang Village, Tawangmangu District, which are nurseries.
Table 2. Identity of shallot marketing respondent traders

| No | Trader Identity          | Amount | Percentage |
|----|--------------------------|--------|------------|
| 1. | Trader Status            |        |            |
| a. | Collector                | 5      | 31.3       |
| b. | Market Trader            | 5      | 31.3       |
| c. | Retailer                 | 6      | 37.5       |
| 2. | Average age (years)      | 51     | -          |
| 3. | Level of education       |        |            |
| a. | No school                | 2      | 12.5       |
| b. | Elementary School        | 0      | 0          |
| c. | Junior High School       | 7      | 43.8       |
| d. | Senior High School       | 7      | 43.8       |
| e. | College                  | 0      | 0          |
| 4. | Average trading experience (years) | 17.9 | - |

Market traders are marketing institutions that buy commodities directly from farmers and then sell them in the market. Several market traders live close to farmers or traders, making it easier to transact and negotiate. The payment system usually applied is cash because retailers or consumers generally carry out transactions from outside the region such as Solo and Magetan. These traders also sometimes take shallots from collecting traders. This method is done because market traders do not have close relationships with shallot buyers. In one transaction, market traders usually buy onions with an average of 30–250 kg.

Retailer is a marketing institution that buys commodities directly from farmers, collectors, or market traders to be traded to consumers inside and outside the region. In Segorogunung Village, one onion farmer was found who immediately sold his shallots to retailers. Retailers are the last marketing agency to distribute their products to consumers. The payment system that retailers often apply is cash. In one transaction, market traders usually buy onions with an average of 10–25 kg.

3.3. Shallot marketing funnel system
The marketing funnel consists of institutions that distribute goods or services that work effectively to promote the movement of these goods so that they can be purchased by consumers [6]. Farmers sell shallots through several traders so that the harvest can reach consumers. The traders involved are beneficial to farmers in selling their crops. The limited reach of shallot farmers in marketing their crops can be overcome by having traders. Merchants can buy directly from shallot farmers by visiting the respondent's farmer's house or contacting the respondent farmer. The pattern of shallot marketing funnels in Karanganyar Regency that was formed can be seen as follows:

a. Funnel I : Farmer → Market Trader → Retailer → Consumer
b. Funnel II : Farmer → Collector → Market Trader → Retailer → Consumer
c. Funnel III : Farmer → Collector → Market Trader outside the city → Consumer outside the city
d. Funnel IV : Farmer → Collector outside the city → Consumer outside the city

3.3.1. Marketing funnels I. In this system of marketing funnels, it can be seen that there are 2 marketing institutions involved, namely market traders and retailers. Farmers sell shallots to market traders because of their easy continuity. Farmers in Blumbang Village, Tawangmangu District, Kalisoro Village, Tawangmangu District, Segorogunung Village, Ngargoyoso District, and Berjo Village, Ngargoyoso District have several market traders who live in the same village. Therefore, farmers can directly sell shallots to local market traders. The marketing agency offers shallot products in the market, with the target buyers being retailers. The retailer will buy in sufficient quantity to resell to consumers.

3.3.2. Marketing funnels II. In this system of marketing funnels, it can be seen that farmers also sell shallots to collectors. This method is done because it is easy and fast to get money from the harvest. There are several collector traders, so it is easy for farmers to find and sell their crops. Collectors sort
the shallots and then sell them to market traders. Market traders then distribute the shallots to retailers who have the task of distributing their products to consumers.

3.3.3. **Marketing funnels III.** In this system of marketing funnels, it can be seen if the collectors distribute shallots to market traders outside the city, such as Solo, Magetan, and Sragen. Market traders outside the town also have a role in distributing shallot commodities to consumers. Still, it is rare for retailers to make transactions with market traders outside the city due to the market price, which is already a derivative price of the shallots.

3.3.4. **Marketing funnels IV.** In this system of marketing funnels, it can be seen if the collectors who live in the local area sell shallots directly to consumers outside the city. Collectors carry out this activity with the help of social media technology. Collectors send shallots to consumers outside the city, such as to Solo. Consumers who usually order are places to eat and processing fried shallots.

3.4. **Shallot marketing efficiency**

3.4.1. **Marketing margin.** The marketing margin is obtained from reducing the selling price and the purchase price at each marketing agency. The marketing margin is also accepted by adding up the costs and benefits of each marketing agency involved. The costs incurred from each marketing agency include packaging and transportation costs. The marketing margin consists of the components of the cost of trading (marketing) and the profit received by the trader. This means that the large marketing margin is not only caused by marketing costs but also due to the profits taken by traders. Merchants set a selling price that can provide a certain amount of profit or a selling price. The amount of merchant spending in terms of marketing costs is a component that will determine the size of the marketing margin [7].

| Table 3. Marketing margin at every shallot trading agency in Karanganyar Regency |
|-----------------------------------------------|
| Trade Agency | I | II | III | IV |
|-------------------|---|----|-----|----|
| **Farmer** | | | | |
| Production cost | 8,192.76 | 53.43 | 9,959.73 | 5.33 | 7,105.04 | 47.36 |
| Marketing Fee | 41.51 | 0.27 | 0 | 0 |
| Transportation | 7.43 | 0.04 | 0 | 0 |
| Storage | 0 | 25.07 | 0.11 | 0 |
| Packaging | 0 | 0 | 0 | 0 |
| Unloading and loading | 0 | 0 | 0 | 0 |
| Sorting | 0 | 0 | 0 | 0 |
| Etc | 0 | 0 | 0 | 0 |
| Total Marketing Fee | 48.94 | 0.31 | 175.52 | 0.75 | 0 |
| Total cost | 8,241.7 | 8,395.76 | 9,959.73 | 0.75 | 0.04 |
| Selling price | 14,821.31 | 63.51 | 15,554.13 | 86.41 | 13,324.09 | 88.82 |
| Profit | 3,367.35 | 6,425.55 | 5,594.4 | 6,319.05 |
| **Collectors** | | | | |
| Purchase price | 11,609.05 | 63.51 | 15,554.13 | 86.41 |
| Marketing Fee | 100 | 0.42 | 0 |
| Transportation | 0 | 0 |
| Storage | 25 | 0.1 | 50 | 0.27 |
| Packaging | 0 | 275 | 1.52 |
| Unloading and loading | 0 | 0 |
| Sorting | 0 | 0 |
| Etc | 0 | 0 |
| Total Marketing Fee | 125 | 0.53 | 325 | 1.80 |
| Total cost | 14,946.31 | 15,879.13 | 17,000 | 94.44 |
| Selling price | 16,000 | 68.57 | 17,000 | 8.03 |
| Margin | 1,178.69 | 5.05 | 1,445.87 | 0.27 |
| Profit | 1,053.69 | 5.05 | 1,445.87 | 0.27 |

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Each marketing agency gets a different amount of marketing margin (Table 3). In funnel I, the largest margin is obtained by market traders with a percentage of 18.85%. The highest marketing margin in
funnel II is for retailers, with a percentage of 22.85%. In marketing funnel III, it can be seen that the highest marketing margin in funnel III is for middlemen with a marketing margin percentage of 8.03%. Marketing funnel IV is the marketing funnel with the least number of marketing agencies involved. Only one marketing margin is formed in funnel IV, namely for out-of-town collectors with a marketing margin percentage of 11.17%.

### 3.4.2. Farmer's share

Farmer's share is an indicator used to determine the level of efficiency in each marketing. Farmer's share is obtained by comparing the price received by producer farmers with the price received by the final consumer in the form of a percentage [8]. The following is a table for calculating the farmer's share in this study.

| Marketing Funnel | Price at farmer level (Rp/Kg) | Prices at the consumer level (Rp/Kg) | Farmer's share (%) |
|------------------|------------------------------|--------------------------------------|--------------------|
| Funnel I         | 11,609.05                    | 15,333                               | 75.71              |
| Funnel II        | 14,821.31                    | 23,333.33                            | 63.52              |
| Funnel III       | 15,554.13                    | 18,000                               | 86.41              |
| Funnel IV        | 13,324.09                    | 15,000                               | 88.83              |

Table 4 shows that the farmer share in marketing funnel I is 75.71%, funnel II is 63.52%, marketing funnel III is 86.41%, and funnel IV is 88.83%. Based on these results, it can be concluded that the largest farmer's share is obtained in marketing funnel IV, while the smallest farmer's share is obtained in marketing funnel II. This is due to the length of the existing marketing chain. The more institutions involved will cause the marketing chain to be longer so that the share obtained by farmers will be less and vice versa.

### 3.4.3. Marketing efficiency

Marketing funnels can be said to be efficient by looking at several indicators. The efficiency of shallot marketing in Karanganyar Regency can be seen from the marketing margin and farmer's share. The formed marketing funnel pattern has different marketing margins and farmer's share values. Table 5 shows the level of marketing efficiency of shallots for each funnel in Karanganyar Regency.

| Marketing funnel | Price at Farmer Level (Rp/Kg) | Total Cost (Rp/Kg) | Total Margin (Rp/Kg) | Marketing Margin Percentage (%) | Farmer's share (%) |
|------------------|------------------------------|--------------------|----------------------|---------------------------------|-------------------|
| Funnel I         | 11,609.05                    | 398.53             | 3,723.95             | 24.28                           | 75.71             |
| Funnel II        | 14,821.31                    | 921.73             | 8,512.02             | 36.47                           | 63.52             |
| Funnel III       | 15,554.13                    | 450                | 2,445.87             | 13.58                           | 86.41             |
| Funnel IV        | 13,324.09                    | 225                | 1,675.91             | 11.17                           | 88.83             |

Based on Table 5, the marketing efficiency of shallots in each funnel in Karanganyar Regency can be seen in the four funnels. The closest to efficient is funnel IV. Funnel IV can be said to be efficient because by looking at several indicators. Marketing margin can be used as an indicator in determining efficient marketing funnels. The marketing margins for the four marketing funnel patterns are Rp. 3,723.95; Rp. 8,512.02; Rp. 2,445.87; and Rp. 1,675.91 respectively. The total marketing margin of funnel IV has a smaller value than other funnels. Funnel IV has a marketing margin of Rp 1,675.91 per kg because funnel IV only involves one trader. The merchants involved are collectors outside the city.

Farmer's share can be used as an indicator in determining an efficient marketing funnel. The marketing funnels formed in marketing shallots in Karanganyar Regency have different farmer's share values. Farmer's share for each shallot funnel is 75.71%, 63.52%, 86.41% and 88.83%, respectively. Based on the results of the farmer's share, it can be said that the IV funnel tends to be efficient. This is
because the farmer's share in funnel IV is greater than in other funnels. Farmer's share calculates the farm-level price and the final price.

4. Conclusion
Based on the results and discussion in this study, it can be concluded that the average shallot farmers and traders are aged 15–64 years, so that they enter the productive age, with most graduating from junior high school. Respondent farmers, according to land tenure status, it can be seen that most respondent farmers own their land. The respondent traders of this study are divided into three status traders, namely collector traders, market traders, and retailers. The results of this study indicate that there are four shallot marketing funnels: 1) Farmers - market traders - retailers - consumers (2) Farmers - collectors - market traders - retailers - consumers (3) Farmers - collectors - market traders outside the city - consumers outside the city (4) Farmers - collectors outside the city - consumers outside the city. Based on the results of the farmer's share value, the most efficient marketing funnel is the fourth marketing funnel with the largest value of 88.83%. This is because shallot farmers sell their products directly to final consumers. Farmers are better off offering shallots ready to be sold to final consumers so that the price offered can be high.

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