

Effectiveness of Red Chilli Auction Markets in the Production Center of Yogyakarta, Indonesia

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ABSTRACT. This study aims to describe the auction market mechanism for red chili in Indonesia's production hub of Yogyakarta and assess its efficacy. This study's location was determined in Kulonprogo Regency, a red chili-producing hub in Yogyakarta, Indonesia. There were seven auction markets in Kulonprogo Regency, of which three were selected for operating at the time of the study and were located in Panjatan District. This study was conducted in 2021, with a sample of 50 red chili farmers, who were active participants in three red chili auction markets. In addition to red chili producers, three auction market administrators were interviewed for this study. The data were analyzed descriptively using images and tables. The red chili auction market mechanism began with farmers delivering red chilies, followed by gross weighing, sorting and grading, net weighing, the auction process, the announcement of auction winners, packaging, transportation, payment, and distribution of sales results. The effectiveness of the red chili auction markets in the Yogyakarta production center was rated as high for three indicators: auction market output, auction market flexibility, and the presence or absence of tension in the auction markets.

1 Introduction

Horticulture commodities are potential commodities that have high economic value and market demand [1]. In addition, horticulture has diverse types of commodities and sectors that people need directly [2]. Red chili is a horticultural product that is suitable to be developed in Indonesia [3]. In Indonesia, red chili is a major agricultural commodity because it is a superior plant with a high market value [4]. In addition to exceptional harvests, red chili is one of the most sought-after food items in the community. Red chili is popular among farmers since it can be grown in the lowlands [5]. The following graph demonstrates the rise in chili production in Indonesia from 2015 to 2019.

The high supply of red chili decreases prices because farmers encounter difficulty marketing their harvest. Fluctuating red chili prices are caused by inefficient supply chain management arrangements [6]. Therefore, some farmers sell red chilies to middlemen to expedite the money-processing procedure. Additionally, some farmers sell their produce at auction markets. The auction market is one method for trading with price transparency, maintaining price stability, and boosting farmer and producer motivation [7]. The auction

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market is a location where farmers' red chili harvest is sold through an auction method. The auction market should be an entity that facilitates marketing between farmers. The increase in chili prices at the farmer level needs to be done in order to encourage farmers to produce red chili [8]. The presence of the auction market is an effort to break the supply chain, which can suppress low prices for farmers and stabilize prices [9].

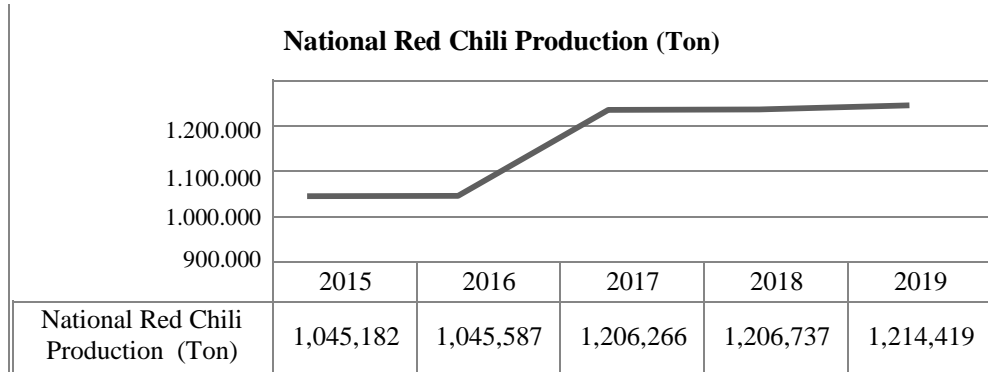


Fig 1. National Red Chili Production from 2015 to 2019 (ton)

Essentially, the auction market connects red chili purchasers and farmer groups [10]. The success of the auction market institution is an indicator for farmers to continue to follow the auction market and devise a solution for farmers who recognize that being a member of the auction market institution has the benefit of a high red chili harvest selling price will obtain marketing certainty, and price [11]. Consequently, the auction market plays a significant role in terms of sales. It is equivalent to avoiding middlemen's inflated prices through the auction market. It piques the curiosity of researchers regarding the process and efficiency of the red chili auction markets in Kulon Progo Regency. Hence, this study aims to describe the mechanism of the red chili auction markets in Kulon Progo Regency and assess their effectiveness.

2 Research Method

This study was conducted in Kulon Progo Regency, determined purposively for being the highest red chili production center. Garongan Village has the highest number of auction markets, totaling three, with 285 members. Bangunkaryo, Jangkang Wetan, and Ngudi Hasil are the three farmer groups represented at the auction markets in Garongan Village. The three farmer groups own 115, 100, and 70 auction market participants, respectively.

According to [12], purposive sampling is a method that considers specific factors. It was applied to determine the research sample of the chairman or deputy chairman of the auction markets by considering the representation of all farmers involved, and both positions have a central position and understand how the process, procedures, and auction market mechanism operates. Subsequently, a simple random sampling of farmer respondents was also conducted. Farmer respondents taken were those who grew red chilies and actively participated in auction market operations. As respondents, 50 farmers were drawn from the population of the Garongan Village auction market members, encompassing 19 farmers from the Bangun Karyo farmer group, 17 farmers from the Ngudi Hasil group, and 14 farmers from the Jangkang Wetan farmer group.

The auction market mechanism was determined using descriptive analysis. As [13] defined, descriptive analysis is a technique for describing research findings that cannot be used to infer conclusions. Descriptive analysis can provide an overview of the red chili

auction market mechanism in Kulon Progo Regency. This analysis demonstrates how the implementation process functions, from product delivery through profit distribution to farmers.

The effectiveness of the auction markets was evaluated using three indicators: their production, their flexibility, and the existence or absence of tension in the auction markets.

Table 1. Categorization of Auction Market Output

Average Score	Auction Market Output Category
Per Indicator	
1.00 – 2.33	Low
2.34 – 3.67	Moderate
3.68 – 5.00	High
Overall Indicator	
3.00 – 7.00	Low
7.01 – 11.01	Moderate
11.02 – 15.00	High

The flexibility of the auction markets was evaluated in terms of their adaptability when something occurs, such as a price change or a payment problem. Low, medium and high categories were utilized in auction market flexibility or adaptation flexibility. According to the Sturges formula [14], the following classification is evident.

Table 2. Categorization of Auction Market Flexibility

Average Score	Auction Market Flexibility Category
Per Indicator	
1.00 – 2.33	Low
2.34 – 3.67	Moderate
3.68 – 5.00	High
Overall Indicator	
4.00 – 9.33	Low
9.34 – 14.67	Moderate
14.68 – 20.00	High

The interaction between members and management, management and management, and justice reveals the existence or absence of tension in the auction markets. In the presence or absence of institutional tension, the categories are high, medium, and low. Following the Sturges formula [14], the following classification is evident.

Table 3. Categorization of the Presence or Absence of Tension in the Auction Markets

Average Score	Category of the Presence or Absence of Tension in the Auction Markets
Per Indicator	
1.00 – 2.33	Low
2.34 – 3.67	Moderate
3.68 – 5.00	High
Overall Indicator	
5.00 – 11.67	Low
11.68 – 18.35	Moderate
18.36 – 25.00	High

The three indicators provide insight into the levels of effectiveness. Each indicator was evaluated differently based on how farmers perceived it.

Table 4. Categorization of Auction Market Effectiveness Levels

Average Score	Effectiveness Category
9 – 25	Low
26 – 42	Moderate
43 – 60	High

3 Results and Discussion

3.1 Red Chili Auction Market Mechanism

The red chili auction market mechanism is the procedure that occurs from delivery to distribution in the auction markets. The procedure involves multiple stages. The auction markets for red chili are part of producers' efforts to generate successful sales. Figure 2 depicts the mechanism's operation.

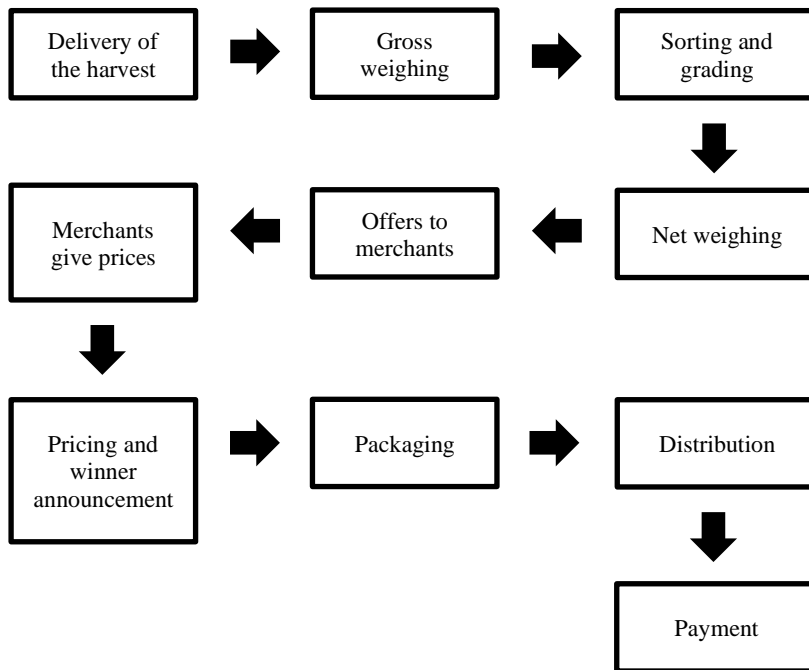


Fig 2. Red Chili Auction Market Mechanism in Garongan Village

Farmers delivered their red chili harvest to the auction markets using sacks, with the sack capacity ranging from 30 to 60 kg. During the opening hours of the red chili auction markets, the delivery of the items occurred. When delivering red chilies to the auction markets, the sacks were labeled with the chili's name and type so that they could be left and ease the auction market administrators to assess the weight using the scales and communicate the results.

Following the delivery from the farmers to the auction markets, the administrators weighed the red chilies. After being weighed, the name, weight, and type were written in a book in the appropriate format. The weight recorded was the gross weight. After being weighed, the chilies were poured onto the auction markets' terrace. After pouring, sorting

and grading were performed.

The management of the red chili auction markets performed this sorting and grading from 05.30 p.m. to 07.00 p.m., depending on the chili quantity to be auctioned. Only marketable and rotten red chilies were sorted throughout this process. The term “rotten” refers to terrible red chilies. After sorting, the class of the red chilies was determined. There were grades A and B, with grade A measuring 10 to 20 cm in length and grade B measuring less than 10 cm. Grade B chilies were returned to the farmers as they were not worth selling.

This sorting and grading demonstrate that the red chilies sold at auction markets are of superior grade. The farmers’ red chilies were weighed for the second time to establish their net weight to ensure that the sale of red chilies does not disappoint buyers.

After sorting and grading were complete, the administrators of the red chili auction markets in Garongan Village obtained the net weight of the sellable red chilies, which were then allocated to the merchants who typically purchased them. The auction managers would call or message the merchants using WhatsApp to distribute the weight. If merchants wish to come immediately to the spot, the administrators of the auction markets will provide them with a slip of paper, which will then be placed in a box.

After all merchants provided the purchase price to the administrators of the auction markets, the auction with the highest price was ready to commence. The managers of the Garongan Village red chili auction markets noted and read the prices offered by the merchants. The administrators distributed the duty between a person who read and wrote the prices on the market board for the red chili auctions. After the administrators of the auction markets recorded all merchant prices, the winner of the auction was determined. All farmers could view the auction pricing list.

The victorious merchant acquired all of the red chilies up for auction. However, if the merchant who won yesterday has won twice in a row and did not pay any of the initial notes, this third note could be awarded to the merchant with the second highest price. The third win condition is to pay off the first note.

After obtaining the winning merchant’s name and price, the winner was announced. The managers of the auction markets sent the auction price to all merchants who had bid to inform them of the auction winner, even if they did not attend the auction in person. The red chilies were placed in packaging boxes for the auction winner to collect. After packaging in cardboards with openings for air exchange, the cardboards were sealed with duct tape to prevent opening and damage during transport. After being duct taped, weighing was performed with one cardboard box of 30 kg and added with the weight of 1.5 kg of cardboard.

After packing, the auction winner dispatched workers to collect the red chilies purchased. Typically, the workers brought the merchant’s truck. Each box in the shipment bore a code. When the workers picked them up, a note specifying the price and delivery time of the chilies was delivered to management. The red chilies were prepared for shipment to the merchant’s warehouse when complete.

After completing the distribution procedure, farmers were compensated based on the quantity and quality of the chilies they had placed, and bad chilies were eliminated.

3.2 Effectiveness of Red Chili Auction Markets in Kulon Progo Regency

Effectiveness is the accomplishment of a goal following the original plan. It can also be defined as a comparison between the achievement level and the goal set.

3.2.1 Auction Market Output

Auction market output is one of the useful variables for illustrating the performance of the red chili auction markets.

Table 5. Auction Market Output Indicator

No	Attribute	Score					Average	Category
		1	2	3	4	5		
1	Profits for farmers	0	0	2	15	33	4.62	High
2	Guaranteed level of all sold production	0	0	2	3	45	4.86	High
3	Feasibility level of the red chili selling price	0	0	5	17	28	4.46	High
	Total						13.94	High

The guaranteed level for the sale of all production is one of the auction markets' outputs, with the highest average of 4.86. On average, farmers preferred to sell their red chilies at auction markets since they were assured of a high product sales rate. This assured sale benefited farmers and the auction markets as a whole. The auction markets' overall output was 13.94, falling in the high category with extremely good standards. Many farmers in Garongan Village who sold to the auction markets enjoyed relatively large earnings and found it easier to sell. There is no price manipulation in the implementation of auction market because auction process is open.

3.2.2 Institutional Flexibility

The auction markets' flexibility demonstrates how institutions can adjust to all changing conditions.

Table 6. Institution Flexibility Indicator

No	Attribute	Score					Average	Category
		1	2	3	4	5		
1	Flexibility of auction timing	0	0	6	17	27	4.42	High
2	Flexibility of selling price eligibility	0	0	3	9	38	4.7	High
3	Flexibility of determining the auction location	0	0	3	10	37	4.68	High
4	Performance flexibility of management in supervising payment activities	0	0	0	6	44	4.88	High
	Total						18.68	High

There are several measures for gauging the auction market flexibility. The highest average rating for the management's performance in supervising payment activities was 4.88, as displayed in Table 6. In managing payment processes, management could modify the occurrence of certain conditions. In any situation, management could also be responsible for overseeing payments. The average auction market flexibility acquired 18.68, falling in the high category. It is also one of the extremely flexible criteria. Since all indicators obtained high mean values, the auction market flexibility of the red chili auction markets was quite flexible. It was highly adaptable, as the institutions could modify conditions at any moment and location. The flexibility of the auction market makes KUDs continue to grow because of the openness of information and good services so that farmers feel the benefits of being members of the KUD [15].

3.2.3 The Presence or Absence of Tension in the Auction Markets

The presence or absence of tension in the auction markets was the final variable to determine effectiveness level. Full results are presented in table 7.

Table 7. Indicators of the Presence or Absence of Tension in the Auction Markets

No	Attribute	Score					Average	Category
		1	2	3	4	5		
1	Tension between farmers who are members	0	0	4	12	34	4.6	Low
2	Tension between farmers and auction market administrators	0	0	3	11	36	4.66	Low
3	Tension of farmers toward the performance of auction market administrators	0	0	4	14	32	4.56	Low
4	Tension in deliberation and consensus activities between farmers and administrators	0	0	0	11	39	4.78	Low
5	Tension in the distribution of sales	0	0	0	6	44	4.78	Low
	Total						23.38	Low

There were several indicators for measuring institutional tension. The tension between the discussion and consensus activities of farmers and administrators, as well as the tension in the division of sales earnings, acquired a high average of 4.78. It could be observed that there was no tension inside the institution during deliberation and distribution of outcomes. A lack of tension enables all farmers to unite, evaluate, and offer suggestions and comments to management and other farmers. The average tension on the auction markets was 23,38, belonging to the high category. In short, the red chili auction market institutions are tension-free.

3.2.4 Effectiveness of Red Chili Auction Markets

Several existing indicators can be utilized to determine the effectiveness level. This measurement determines whether the auction markets meet the farmers' expectations.

Table 8. Red Chili Auction Market Effectiveness Level

No	Attribute	Score	Category
1	Auction market output	13.94	High
2	Auction market flexibility	18.68	High
3	The presence or absence of tension in the auction markets	23.38	High
	Total	56.00	High

These three criteria can be used to gauge the effectiveness level. The sum of the three variables was 56.00, placing it in the "high category". The efficiency of the red chili auction markets in Kulon Progo was exceptionally high. This highly effective outcome demonstrates that the presence of the auction markets has become an opportunity for farmers, one of which is to prevent pricing monopoly. The auction market pricing was constant and crystal clear. The auction procedure in Garongan Village was similarly transparent, providing farmers with the added benefit of being able to observe its progression. Therefore, farmers believed that the auction markets merited a high degree of efficiency and were highly efficient.

4 Conclusion

The red chili auction market mechanism in Garongan Village, Panjatan District, Kulon Progo Regency consisted of several processes, beginning with the delivery of red chili products from farmers, gross weighing, sorting and grading, net weighing, pricing, informing the winners to merchants, packaging, transportation, delivery, and payment receipt, as well as the delivery of sales results to farmers. The red chili auction markets in Garongan Village were quite effective.

Sorting must incorporate assistance from members of the auction markets to expedite sorting and grading, hence saving time. Packaging can also be added with assistance, allowing for an orderly and manageable packaging process. It is advisable to be aware of recently joined merchants, and knowing their quality is a must.

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