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How important competitive advantage is for maize grain potential market

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Abstract. Various efforts to improve maize grain competitiveness need to be immediately increased so that Indonesian maize has a competitive advantage and even eliminates the dependence on maize imports. Factors that need to be considered in which Indonesian maize production can be improved and able to be competitive is originated from production which is then offered on the potential market. This paper focused on identifying competitive advantages through 3 variables; cost leadership, product differentiation and focus by descriptive analysis. This study was conducted in Jenepono Regency, South Sulawesi, Indonesia as one of the maize grain centers production in Indonesia. The result showed that the focus variable had a higher score than cost leadership and product differentiation. This indicated that farmers chose maize as a superior commodity and devote time and energy to the cultivation of maize, because it had advantages and was done by trying to minimize production costs in order to achieve the good quality standard and high production of maize grain in achieving competitiveness to reach potential market either national or international.

1. Introduction

Most of the maize farms in Indonesia are still conventionally managed, so they have low competitiveness compared to developed countries such as America and China. In Indonesia, the need for yellow maize is still supplied by other countries, where maize has a strategic role in efforts to meet national demand. National maize demand from year to year continues to increase, not only because of population growth, but also because of the growth of livestock business and food industries. The fact showed that national maize productivity is lower when compared to maize productivity of major producing countries such as the United States which have reached 9.77 tons/ha and China 5.50 tons/ha [1]. In 2010, the import volume of maize increased by 1,527,516 tons. On the other hand, maize exports continued to decrease by 41,954 tons [2]. The marginal competitiveness as export product could be increased thru the export of value-added of maize grain along with targeting the high end-market or consumers [3].

Based on this fact, maize grain had a potential opportunity. It is one of the most important food, feed, and industrial crop worldwide and also critical for food security in which food security ability to anticipate the problem of hunger [4,5].



Thus, whether maize production is developed, it can contribute significantly to economic growth, increase income and reduce poverty in Indonesia. Various efforts to improve maize competitiveness need to be immediately improved so that Indonesian maize has a competitive advantage and even eliminates the dependence on maize imports. Factors that need to be considered so that Indonesian maize production can be improved and able to be competitive is originated from production which is then offered on the international market. Competitive advantage should be seen as a dynamic process rather than just seen as an end result [6]. In this paper, maize farming activities is important to achieve a competitive advantage through 3 alternative strategies; cost leadership, differentiation, and focus [7].

2. Methods

This research was conducted in one of the maize grain production centers in Indonesia, namely Jeneponto Regency, South Sulawesi. Data were collected by investigating maize farmers with the questionnaire. Data were analyzed with descriptive analysis based on existing data and describing it systematically, factually and accurately about the facts, characteristics and relationships between the phenomena studied. Total of samples were 120 maize farmers using probability sampling method. The measurement of variables in this study used a Likert scale using 5 scales namely (1) strongly agree, (2) agree, (3) quite agree, (4) disagree, (5) strongly disagree.

Descriptive analysis is a statistic method which is used to analyze data by describing that has been collected as it is without intending to make applicable conclusions to be generalized. Before that, every variable is tested by reliability. Then, descriptive statistical analysis was displayed in the form of tables. The transformation of primary data into a form that will make it easy to interpret [8].

3. Results and discussion

Competitive advantage relates to how farmers choose and implement generic strategies into farming practices. The measurement of competitive advantage variables through observe variables namely cost leadership, product differentiation and focus. Descriptive analysis is done by calculating the frequency of respondents' answers to the questions on each observe variable. The variables of competitive advantage were based on Porter's which was cost leadership (X_1), product differentiation (X_2) and focus (X_3). Then, the three strategic variable steps were then measured using four-question indicators.

3.1. Reliability test of competitive advantage

Measured indicators which are used in competitive advantage such as cost leadership (X_1), product differentiation (X_2) and focus (X_3). The test results with confirmatory factor analysis were presented in the following table 1.

Table 1. Reliability test of competitive advantage variable

Indicator variables	Estimate (factor loading= λ)	λ^2	Measurement error ($1 - \lambda^2$)	CR
X_1	0.84	0.705	0.295	0.851
X_2	0.75	0.562	0.438	
X_3	0.83	0.689	0.311	
Total	3.06		1.635	

$$CR = \frac{(\sum \text{standardized loading})^2}{(\sum \text{standardized loading})^2 + \sum e_j} = \frac{(3.06)^2}{(3.06)^2 + 1.635} = 0.851$$

Based on calculation above, construct reliability variable competitive advantage was equal to 0.851 above the limit value used to assess an acceptable level of reliability was 0.60. It meant that all indicators of competitive advantage were significantly reliable to measure.

3.2. Cost leadership (X_1)

Cost leadership was a performance aimed at reducing costs in order to generate high profits. Measurement of the observe X_1 variable was carried out on table 2.

Table 2. Frequency distribution of cost leadership

Items	12			
	Frequency	Percent	Valid Percent	Cumulative Percent
Unable	20	16.7	16.7	16.7
Enough able	33	27.5	27.5	44.2
Able	67	55.8	55.8	100.0
Total	120	100.0	100.0	

Table 2 showed that only a few farmers were able to reduce costs to a minimum, so that production costs are lower than other farmers. Low production costs are carried out by farmers in several ways, including: the use of own capital so as to reduce the interest burden, use of cheap pesticides and buy production facilities that are truly in accordance with the need to avoid waste. For the high applied technology in farming, helping farmers improved agricultural management through intensively managed of farm production input to reduce costs [9]. However, farmers who have not been able to reduce costs are due to the assumption that minimal costs will affect production. This is also supported by the calculation of the average weight of 3.39 which is in the **fairly good** category. Cost is a competitive advantage strategy to find an exploit all important **sources of cost advantage and becoming any cost producer in the industry to pursue cost leadership strategy** [10].

3.3. Product differentiation (X_2)

Product differentiation was shown by the unique and strategic position of the product to maintain and favor the products of competitors. Measurement of the variable observe X_2 was performed on table 3.

Table 3. Frequency distribution of product differentiation

Items	Frequency	11		
		Percent	Valid Percent	Cumulative Percent
Not different	20	16.7	16.7	16.7
Normal	20	16.7	16.7	33.3
Different	80	66.7	66.7	100.0
Total	120	100.0	100.0	

Table 3 showed that most farmers cultivate maize and produce maize that was unique and different from other farmers. The uniqueness and difference of each other lied in the type or variety of maize, where the six seed varieties cultivated by farmers are superior seed varieties in Indonesian brand namely: Bisi 2, Bisi 18, NK 33, NK 99, NK 212 and PIONER varieties. In the global, seed brand company was produced popularly by Monsanto, Pioneer, Cargill and any other. The six Indonesian varieties of maize are single cross hybrid varieties, which were very good if planted in the lowlands to highlands up to 1,000 meters above sea level. The advantage was the resistance to leaf rust disease (*Puccinia sorghi*) and leaf blight (*Helminthosporium maydis*). This was because the maize seeds were slender deeper and the shape of the maize was very small. This specialty was very beneficial because the percentage of seeds obtained per unit area was getting higher so that the production was getting higher as well. This was also supported by the calculation of the average weight of 3.50 which is in the

good category. Differentiation is a strategy of firm to identify the uniqueness of product and service as well that are widely valued by customer [10].

3.4. Focus (X_3)

The focus of farmers was indicated by choosing certain varieties of maize which were considered to have competitive advantages over other products. Measurement of the observe X_3 variable was carried out on table 4.

Table 4. Frequency distribution of focus

Items	Frequency	Percent	Valid Percent	Cumulative Percent
Little focus	13	10.8	10.8	10.8
Focus	107	89.2	89.2	100.0
Total	120	100.0	100.0	

Table 4 showed that most farmers choose maize as a superior commodity so that they focus on devoting time and energy to other commodities, such as seaweed that can be harvested every 15 month, but the yield of maize was greater than seaweed and other commodities. Focus is one of the factors affecting organizational learning together with competitive advantage to reach the outcome. Additionally, competitive advantage through the focus is a strategy enables firm in various sectors to sustain supper profits [11]. This is also supported by the calculation of the average weight of focus variable reached the highest score with 3.89 which is in the very good category. Focus is one of a strategy in competitive advantage to select a segment or group in the industry in serving to the exclusion of other [10]. This research tried to find out of focus on product even two generic strategies generally implemented were focus differentiation and focus low cost [12].

3.5. Observe variable of competitive advantage

Based on the frequency distribution of respondents' answers, it can be seen that the average of each observe of cost leadership (X_1), product differentiation (X_2) and focus (X_3) variables were shown in table 5.

Table 5. Average value of competitive advantage variables

Variable observe	Value
Cost leadership (X_1)	3.39
Product differentiation (X_2)	3.50
Focus (X_3)	3.89
Average	3.59

1 Table 5 showed that the variable perceived high by respondents was the focus variable, which indicated that farmers chose maize as a superior commodity and devote time and energy to the cultivation of maize, because it has advantages and was done by trying to minimize production costs. Not only focus but also product differentiation and cost leadership are a generic strategy for competitive advantage. A strategy involves positioning offensive or defensive actions to create a defendable position in the industry. Generic strategy can figure out the organization to cope with the competitive force in the industry and be a better than other organizations [7,10].

4. Conclusion

In reaching competitive market in maize grain, focus variable was the higher score (3.89) than product differentiation (3.50) and cost leadership (3.39). This indicated that farmers focus to choose maize as a superior commodity and devote time and energy to the cultivation of maize, because it had advantages and was done by trying to minimize production costs.

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