

Production factor analysis affecting the improvement of local food industry marketing in West Sumatera

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Abstract. Free Trade in the Era of the ASEAN Economic Community requires a highly competitive industry. Therefore, quality improvement becomes the keywords in this highly competitive market competition. West Sumatera, which is developing the local food industry, has undertaken various activities to improve product quality. But the improvement of quality to improve the competitiveness is still not achieved. Of the 140 Local Food Business Groups incorporated in the "Service Unit of Agricultural Product Development and Marketing" is still no one able to penetrate the overseas market. Production factors related to organ ware factors are still problematic in terms of production management and marketing. This results in a bad production process and ultimately affects the quality of the resulting product. Bad marketing management leads to marketing only on the local market. This requires a solution to improve the quality and competitiveness of local food products. Because it was conducted research with the aim of analyzing various factors that affect the increase in sales. The research consists of the following activities: (1) In depth interview, conducted to map the marketing determinants, (2) marketing optimization with surface response method, (3) making decision diagram about marketing stages 4) application Analytical Hierarchy Process (AHP) by using expert. From the research, it can be seen that production factors that are directly related to the increase of sales are capital (0.3532), tools (0.3128), sanitation production (0.2287) and product quality (0.1053). The surface response method shows that these four factors of production (capital, equipment, and sanitation and product quality) are interrelated and play a role in determining the level of sales.

Keywords: Competitiveness; Industry; Quality; Local Food; Marketing

1. Introduction

The local food industry can increase the added value of agricultural products. Currently this industry still has problems especially about raw materials, product quality and marketing [1]. In the era of ASEAN Free Trade (Asean Economic Community), all these problems must be resolved.

Based on the national policy, the development of local food industry especially small scale is directed to the following: (a) local food industry clusters integrated with raw material production location; (b) cooperation between small and large scale industries; (c) regulation on large scale food industry (d) improvement of competitiveness. The Government of Indonesia has established Road Map of industrial development as a reference for the development of small-scale local food industry [2]. Based on the Road Map, the West Sumatera Provincial Government has established a business group incorporated in the "Unit Services and Development of Agricultural Products Processing". This industrial group is an embryo of the local food industry cluster in West Sumatera. Until 2015, 126 local



food business groups have been formed in all regions in West Sumatra [3]. To improve the competitiveness of the local food industry, various training related to food processing technology has been done. Training materials adapted to the conditions of product competition in the market.

Increased competitiveness should always be done because all producers will always compete in the market. Harisudin's [4] states that producers must improve the marketing of their products. Stages that can be done is market penetration and product development. Therefore quality standards should always be applied in the production process.

The development of the local food industry is also influenced by technological components. It therefore requires information about the components of technology that affect the quality and marketing of local food products. Based on the results of research conducted by [1] it can be seen that the factors influencing technology components are the operational factors of tools, raw materials, production efficiency, production capacity, technology adoption and technology resources. The dominant organ ware factors include environmental management, marketing and production management. The components of the local food industry in West Sumatra still have problems in terms of raw materials, capitalization, consumer tastes, packaging, sanitation and food security, production management and marketing management [5].

All the problems must be analyzed. According to [6] for that can be done with a strategic approach by examining the factors that affect the small industry. After that SWOT analysis to formulate a systematic development strategy. SWOT analysis is needed to determine the strategy in competition. According to [7] to compete in the free market MEA needs a cluster approach by increasing the relevance of the core industry, supporting industries and related institutions. Industry and related institutions should also be able to facilitate the adoption of highly competitive technologies.

According to [8], Technology adoption should be continued with post-training business assistance. Training materials should be in accordance with the needs of the local food industry. Technology determines product quality, and quantity of production, profitability and marketing.

2. Methods

To analyze the factors of production that influence the increase in marketing conducted an in-depth interview with the expert. Then the parameters obtained were analyzed with Analytic Hierarchy Process (AHP) program. This is done to determine the importance of each variable based on its value. The level of importance is based on the scale of their respective interests.

To see the interaction between factors of production used surface response method with the design of central composite design (CCD). Four variables in increasing sales include tools, sanitation, capital, and quality. The response from increased sales of the process will be used to develop a mathematical model that correlates with tools, sanitation, capital, and quality according to the following polynomial equations:

$$Y = \beta_0 + \sum_{i=1}^3 \beta_i X_i + \sum_{i,j=1}^3 \beta_{ij} X_i X_j + \sum_{j=1}^3 \beta_{jj} X_j^2 \quad (1)$$

Where y is the approximate response value, X_i and X_j represent the variables, β_j is a linear effect, is the interaction effect, β_{jj} is the quadratic effect.

3. Results and Discussion

Based on the result of the research, it is apparent that the production factor which influences the marketing of local food products in West Sumatera is capital with the weight of 0.3532, equipments (0.3128), production sanitation (0.2287) and product quality 0.1053. For more details can be seen in Figure 1 below.

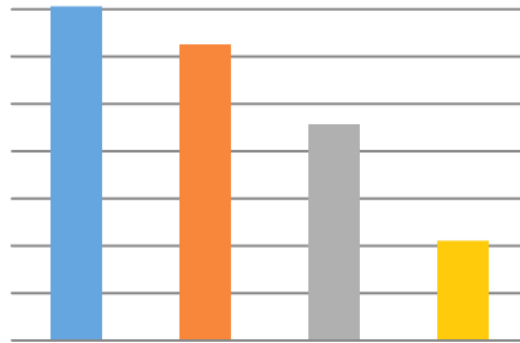


Figure 1. The weights of the factors that influence marketing improvements.

Capital affects increased marketing because it is required for operational costs and employee wages. [9] States that wages, productivity and venture capital affect employment. Capital will also affect the quality of products related to consumer acceptance. [10] Stated that consumer confidence can increase sales and profits. Likewise materials (especially price and quality) will affect the quality so it will affect the level.

3.1 Tools and Sanitation Interactions on Increased Sales

The Figure 2 explains that the interaction between equipment and sanitation affects increased sales. In the interaction image between the tool and sanitation produces different color degradation. The lighter the colors produced on each graph, indicating the higher the response value to the increase in sales. Color degradation resulting from the lowest response values of blue, green, yellow, orange and red. The red color on the chart shows the highest sales increase.

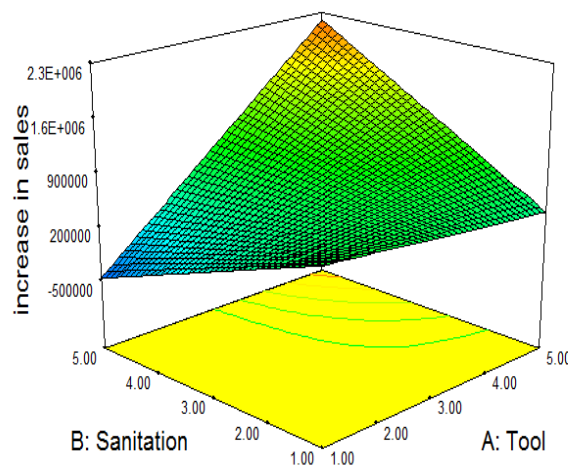


Figure 2. Surface Response Increased sales on equipment interaction and sanitation.

3.2 Tools and Quality Interaction against Increased Sales

The Figure 3 explains that the interaction between the tool and the quality affects the increase in sales. The resulting color degradation is blue, green, and yellow to orange. Blue shows the increase in sales affected by the lowest tools and capital, while the green, yellow, orange to red indicate an increase in sales has increased.

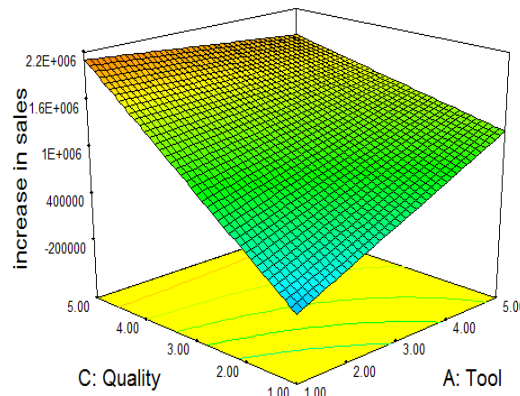


Figure 3. Surface Response Increased sales on tool interaction and quality

3.3 Tools and Capital Interactions on Increased Sales

In the Figure 4 can be seen that the interaction between tools and capital affect the increase in sales. The degradation of the colors produced in the image varies from blue, green, yellow and orange. The blue color shows the interaction between the tool and the sanitation value of the small sales increase. The yellow and orange colors indicate if the interaction between the tool and the capital increase in sales is large.

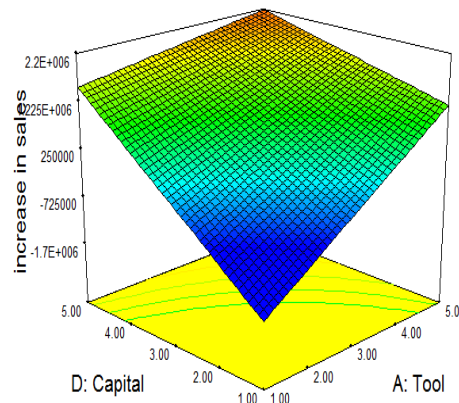


Figure 4. Surface Response Increased sales on tool interaction.

3.4 Sanitation and Quality Interpretation of increased sales

From the Figure 5 can be seen that the interaction between sanitation and quality affects the increase in sales. The resulting color degradation in the image is green, yellow to orange. Degradation of green color indicates if the interaction between sanitation and quality with a small increase value.

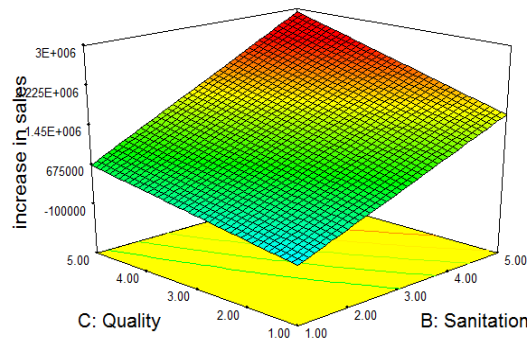


Figure 5. Surface Response Increased sales on sanitation interactivity and quality

3.5 Sanitation and Capital Interactions on Increased Sales

The Figure 6 illustrates that the interaction of sanitation and capital affects increased sales. In Figure, the interaction between sanitation and capital produces degradation of blue, green, yellow, and red orange. The brighter the resulting color shows the sales have increased.

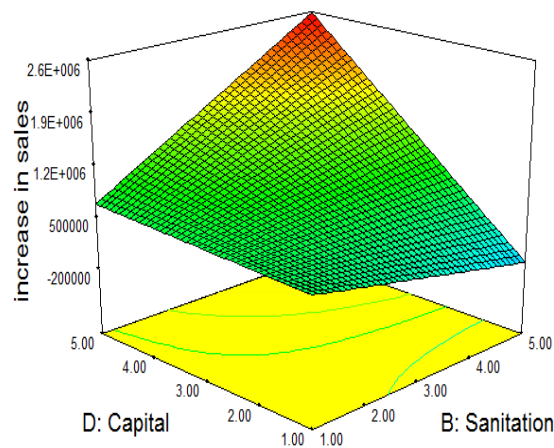


Figure 6. Surface Response Increased sales on sanitation and capital interaction

3.6 Quality and Capital Interaction on Sales increase

The Figure 7 illustrates that the interaction between quality and capital affects the increase in sales. Degradation of the resulting color green, yellow, orange to red. The green color indicates if the interaction of quality and capital hence sales have a low increase, whereas red degradation indicates if the interaction of quality and capital resulted in sales with a large increase.

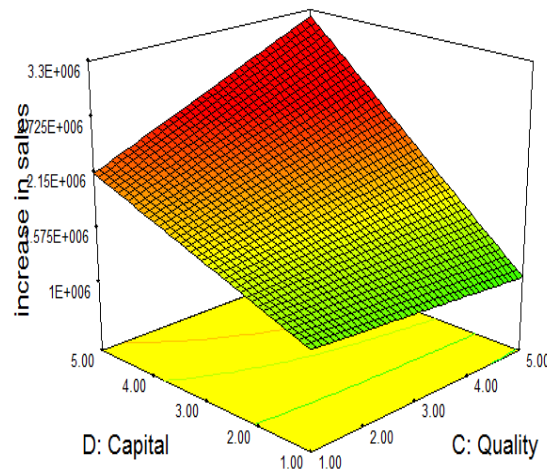


Figure 7. Surface Response Increased sales on quality and capital interactions

From the graph of the surface response is clearly visible interaction factor capital, sanitation, quality, and production tools to increase marketing. According to [11] capital is a major factor affecting the productivity of small industries, in addition to other factors such as raw materials and government policies.

Increased sales are also related to the quality desired by consumers. [12] states that the shape of the product, packaging will affect consumer perceptions and choices. Size, label and product information determine the selection of consumers to a product. [13] States that wages, age, gender and work experience affect labor productivity. [1] Also stated that the development of small-scale local food industry is still difficult because it is still constrained by the problem of raw materials, quality, and marketing of products.

According to [5] small scale food industry in general have not been able to apply processing technology properly. Although the owner of this small industry has often attended training, but the adoption of the technology is still low. In addition, production efficiency is still a problem in the local food industry. [14] Say that small-scale industries are an option to reduce operational and organizational efficiency. This will improve production efficiency and increase industrial productivity. Implementing a 5S system (sort, shine, set in order, standardize, sustain) can improve the organization of the company in the following ways: Better use of work area, improved work environment, tool loss prevention, crash reduction, pollution reduction. [15] states that inter-industry linkages in the form of clusters can improve product competitiveness, harmonization and integration in policy determination.

4. Conclusion

From the results of this study can be concluded that the factors that can improve marketing are capital, tools, sanitation and product quality. To improve the marketing can not be done with only one factor. This is because these four factors are interrelated and it is necessary to see the relevance of all these factors in an effort to improve marketing. It should also be noted some things related to marketing conditions related to business management, support of supporting industries and related institutions.

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