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# Analysis of Consumers Perceptions of the Important Factors in Soygurt Products and Marketing Strategies

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**Abstract:** As a source of protein, soybean is important role in improving the society's nutrition needs. Yogurt products from soy (soygurt) contain high nutrients and vitamins and are a functional food product with low prices for the community. Soygurt product necessary to be produced and disseminated to the community. This study aims to analyze consumer perceptions of soygurt products to be able to determine the priority factors and also to develop a marketing strategy plan. The methodology of consumer perceptions are determined by rating the important factors using the Fuzzy AHP (Fuzzy Analytic Hierarchy Process) method. Fuzzy AHP analyzes the problems related to consumer perceptions of attribute factors. The results of the Fuzzy AHP analysis are used as a basis for determining the internal and external strengths of SMEs by using the SWOT method. The SWOT Method is used to obtain the concept of marketing strategy. Based on Fuzzy AHP analysis, the main criteria for the preference of soygurt product attributes consist of taste, packaging, brand, main raw material and product label. Fuzzy AHP test results show that the taste of adding strawberry and mango is more preferred than the original taste, bottle packaging, and the brand soygurt product. The strategy obtained for soygurt products is a strategy to increase production volume and expand marketing networks, improve product packaging to be more attractive, set prices with cost orientation, expand information dissemination and promotion. Marketing strategies based on SWOT analysis in the results of the study showed the hierarchy that needs by producers so that these products can be accepted by consumers.

**Keywords:** Soygurt, AHP, SWOT, consumer, perception.

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## 1. Introduction

Soybeans are rich in iron, calcium, complex vitamin B, phosphorus, and fat [1]. With the shift in consumption patterns from animal food ingredients to plant foods, soybeans have a great opportunity to develop. Soy protein has an amino acid composition that is close to the composition of the essential amino acids of milk protein [2]. On the one hand, the diversification of soybean-based food processing is still very limited. Soybean milk also contains fat, carbohydrates, calcium, phosphorus, iron, provitamin A, Vitamin B complex (except B12), and water [3]. However, the level of consumption of soy milk in Indonesia is still relatively low, especially when compared with China, the Philippines or Thailand [4]. Soy milk is soy milk which is processed by destroying soybean seeds in cold or hot water [5]. Soybean milk can be made with simple technology and equipment and does not require special skills [6]. Because of its high protein content, soy milk is the best drink to replace cow's milk products for people who have lactose and casein intolerance [7]. Besides being used as a protein source, soybeans are also processed as functional food products that can prevent the onset of degenerative diseases. One of the soy-based functional food products is yogurt products from soy milk (*Soygurt*) because in this product there are probiotic bacteria *Streptococcus thermophilus* and *Lactobacillus bulgaricus* which can improve the balance of intestinal microflora so that it can accelerate human digestion.

Increasing the economic value of post-harvest results to provide incentives for soybean farmers is important to be done through the development of production centers that process post-harvest results towards the commercialization of products in agro-industries. Supply chain management distribution in the center of soybean production in the region of Grobogan Regency, Central Java [8] has been carried out well from the level of farmers, collectors, wholesalers, and consumers both industrial consumers and community consumers. After harvesting soybean, the rural community agroindustry in processing soybeans is able to increase the economic value of the product which is quite high. The group of community members in the soybean production center in Grobogan Regency has been producing soybean processing in the form of tofu and tempeh products for generations. The development of soybean processing products in addition to tofu and tempeh in the form of industry in the community is very much needed to support the diversification of soybean processed food products in the community. Processing soybeans into *Soygurt* products is one of the alternatives to increase the post-harvest economic value into one of the healthy, nutritious and necessary vegetable food products for the community. Industrialization at the level of community business groups will result in the formulation of *Soygurt* products and their derivatives in accordance with the criteria for perceptions of consumer needs and production cost targets. Soybeans [9,10] are commodities that have very high nutritional value and are very good for fulfilling vegetable protein needs in addition to other health supporting aspects. Soybean [8] is a commodity that has a high protein content which reaches 40% which is the highest content of various other vegetable protein ingredients. In line with the development of food processing technology, soybeans are very good to be processed into healthy functional food products such as soy milk and soy yogurt (*Soygurt*) [11].

The study aims to determine the extent to which consumer perceptions of *Soygurt* products developed by Soybean Production Centers Joint Business Group of Small and Medium Enterprises (UKM KUB) are in accordance with the attributes of the factors needed and the preparation of marketing strategies. Important factors that determine consumer perception of *Soygurt* products produced are used with the Fuzzy AHP (Analytic Hierarchy Process) method. Fuzzy AHP to determine the important factor attributes by rating the priority of product factors that are in accordance with consumer perceptions (Suyatno, 2011). Furthermore, the results of the Fuzzy AHP analysis are used as a basis for determining the internal and external strengths of SMEs which will then be analyzed using the SWOT method to get the right marketing strategy [12].

## 2. Materials and Methods

### 2.1. Research Objects

The product which is the object of this research is *Soygurt* which is produced by Setia Budi SME, Grobogan Regency, Central Java. The research focused on community perceptions by sampling in the Grobogan Regency area for determining product priority ratings. Product priorities are based on consideration of marketing mix elements (Product, Price, Place, and Promotion).

### 2.2. Research Method

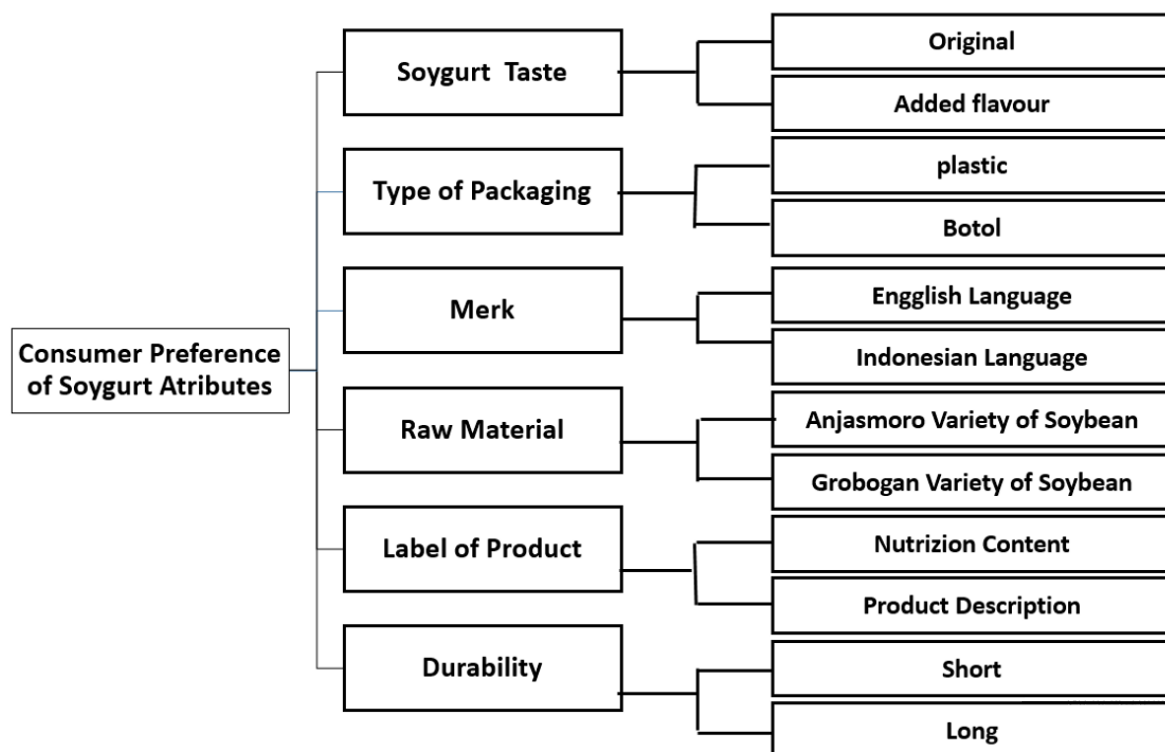
In this research, data collecting technique was done through the interview and questionnaire. The AHP questionnaire aims to determine the priority rating of *Soygurt* products and the SWOT questionnaire is used in the preparation of the strategy. The AHP questionnaire respondents in this study were people who had consumed *Soygurt* in the Grobogan Regency. The sample collecting technique used in this study was nonprobability sampling, which is a sampling technique that gives an unequal opportunity or opportunity for each element or member of the population to be selected as a sample. Furthermore, the method used was purposive sampling, which is the determination of samples for specific purposes only.

### 3. Result and Discussion

#### 3.1. Product Attributes Preference

Products are a set of tangible and intangible attributes [13]. While attributes are specific characteristics or certain characteristics designed in a product or service. Therefore, the product attributes of *Soygurt* are important to be noticed by producers so that their products are preferred by consumers in the market. Consumer preference [14] is a choice that is preferred by consumers compared to other types of choices. Consumers will prefer a *Soygurt* product because it is seen as giving more satisfaction preference to them. One of the consumers' consideration in choosing *Soygurt* products is *Soygurt* product attribute variables to be chosen. Consumers will tend to choose *Soygurt* products that have attributes according to their tastes. The consumer of *Soygurt* products who become respondents will compare a *Soygurt* product attribute with other attributes in the questionnaire with a value scale of 1-9. The results from the questionnaire and the processing were carried out by using Fuzzy AHP method. This method produces a sequence of *Soygurt* product attributes that are more important to consumers so that it can be input for Setia Budi SMEs in increasing marketing and sales activities of *Soygurt*.

The criteria of consumer preference for *Soygurt* products in Fuzzy AHP are the preferred attributes of *Soygurt* products, consisting of the attributes of taste, packaging, brand, main raw material, product shape, and durability. Taste attributes are an important factor in consumer preferences to assess a product [15, 16]. Beauty in packaging is a visual attraction that includes consideration of the use of colors, shapes, brands, or logos, illustrations, letters, layouts or layouts. A brand is a name or term to refer to a product and distinguish it from its competitors [15,17]. *Soygurt* is a yogurt product used with soybean raw materials. The use of several ingredients added more for the purpose of producing the different taste and flavor of *Soygurt* products such as strawberry, mango. Then the criteria are lowered into several sub-criteria. The consumer preference for *Soygurt* product attributes in Fuzzy AHP method as stated in Figure 1.



**Figure 1.** The Hierarchy of Consumer Preference on Soygurt Attributes

### 3.2. Questionnaire Composing

The assessment of consumer preferences through attributes of the factors that are emphasized in *Soygurt* products was done by filling out a questionnaire as a tool for data collection. In the main criteria section, the question comparing one *Soygurt* product attribute with other attributes was calculated in pairs. The questions used in the questionnaire are closed questions with a scale of 1-9.

### 3.3. Fuzzy AHP Testing

Fuzzy AHP that had been compiled was then carried out the testing phase of the results of the results of the calculation of the questionnaire obtained. The results of filling out the questionnaire from consideration of respondents preferences through Fuzzy AHP testing are needed for the sake of analysis of the results obtained. The results of filling in the main criteria and sub-criteria will then be formed into a pairwise comparison matrix. Furthermore, Fuzzy AHP testing is done through fuzzification calculation, ratio consistency, and defuzzification stages.

### 3.4. Main Criteria

The main criteria for *Soygurt* product attribute preferences consist of taste, packaging, brand, local soybean raw material, product shape, and durability of *Soygurt* products. This main criterion is the main consideration of a consumer in choosing *Soygurt* products produced by SMEs.

#### 3.4.1. Consistency Ratio Measurement

Consistency ratio (CR) is calculated to show the ability of respondents to compare the criteria used in pairwise comparisons of the attributes of consumer preferences taken into account. Consistency ratio is used to overcome the inconsistencies of respondents in comparing many criteria. A high CR value illustrates that the respondent's answer is less consistent, while the smaller CR value shows the consistent consistency of answers. A respondent is stated to be consistent if he has a CR value below 0.1. While for respondents who are inconsistent (CR value above 0.1), the results of the assessment of the questionnaire are declared null or not used in the next stage. Table 1 states that the pairwise comparison matrix of the respondents on the attributes given was assessed.

**Table 1.** Paired comparison matrix of respondents

Criteria	Taste	Type of Packaging	Merk	Raw Material	Product Label	Durability
Taste	1	3	5	3	5	1
Type of Packaging	1/3	1	7	1/3	5	1
Merk	1/5	1/7	1	1/5	1/3	1/7
Raw Material	1/3	3	5	1	5	1/5
Product Label	1/5	1/5	3	1/5	1	1/5
Durability	1	1	7	5	5	1

Source: data processing, 2017

Obtained from data processing the CR value obtained is less than 0.1 so it can be concluded that the results of the respondents' questionnaire are consistent for use. Furthermore, the Fuzzy AHP calculation is performed which shows that at this testing stage, the respondent chooses flavor attributes as the main consideration when choosing *Soygurt* products. The next consecutive product attributes that are prioritized by consumers are durability, packaging form, brand, raw material, and finally the *Soygurt* product label.

Taste is the main criterion that is most important for consumers in choosing a *Soygurt* product. Consumers will prefer *Soygurt* if the taste of *Soygurt* products is as expected and able to provide

maximum satisfaction. If the taste of *Soygurt* is not met, then it can be ascertained that consumers will not choose *Soygurt* products or are not interested in repurchasing. The second important criterion is the durability of the product. Good product durability will ensure consumers get the highest quality *Soygurt* products when consuming them. The third important criterion is the type of packaging. Packaging is a consumer attraction when choosing a *Soygurt* product. Unique types of packaging will be more noticed by consumers and have a greater chance of being selected. The fourth important product attribute is the brand. Brands describe a *Soygurt* product briefly and clearly so that a consumer will more easily recognize the product he likes. The fifth and sixth attributes are raw materials and product labels. Consumers do not think too much about these two product attributes as long as they get satisfaction from the *Soygurt* flavor they offer.

### 3.5. Sub Criteria

#### 3.5.1. Consistency Ratio

The measurement of consistency ratio in the sub criteria was done in the same way as in the main criteria. The aim is to ensure that the data processed using Fuzzy AHP comes from respondents who are able to answer questionnaires consistently. Before calculating consistency ratios, answers from respondents were formed into pairwise comparison ratio matrices Table 2 and Table 3.

**Table 2.** Paired comparison matrix of Product Taste

Taste	Original	Adding Flavour
Original	1	1/8
Adding Flavour	8	1

Source: Data Processing, 2017

**Table 3.** The Result of Consistency Rasio (CR)

Taste	Original	Adding Flavour	Weight
Original	1	1/8	0,111
Adding Flavour	8	1	0,889
$\lambda \max = 5,0625$ C.I. = 3,0625 R.I.= 0 C.R. = 0			

The CR value obtained is less than 0.1 so it can be concluded that the results of questionnaire 1 respondents are consistent. Meanwhile, the sub-criteria only compares 2 criteria. For example, the taste criteria only compare the original flavor and the addition of strawberry flavor. This condition makes a person be consistent in making choices. Viewed from the calculation side, in the random index table, the number of criteria 2 has the value of R.I. 0 so that the results of the C.I calculation divided by R.I. will get a CR value of 0 which means consistent. As a result, all respondents who answered the sub-criteria question were stated to be consistent. The results of filling out the sub-criteria questionnaire are then converted into fuzzy forms through the fuzzification process. Table 4.

**Tabel 4.** The Result of Fuzzy AHP on Sub Criteria

Criteria	Sub Criteria	Weight	Rank
Taste	Original	0,457357	2
	Adding Flavour	0,542643	1
Type of	Plastic	0,342199	2
Pacaking	Bottle	0,657801	1
Merk	Indonesia Language	0,394801	2
	English Language	0,605199	1
Raw Material	Anjasmoro Variety of Soybean	0,522052	1

**Table 4.** The Result of Fuzzy AHP on Sub Criteria (continued)

Criteria	Sub Criteria	Weight	Rank
Raw Material	Grobogan Variety of Soybean	0,477948	2
Product Label	Nutriiton Content	0,48797	2
	Product Descriptiont	0,51203	1
Durability	Short	0,372577	2
	Long	0,627423	1

The output of the Fuzzy AHP test shows that the taste of adding strawberries to *Soygurt* is preferable to the original taste. The choice of the flavor of strawberry addition can be affected because it is sweeter and more fragrant in the *Soygurt* that has been made. This choice of taste must be considered well by the manufacturer considering the flavor attribute as the most important attribute of consumers in choosing *Soygurt* products. Second, the type of bottle packaging is preferred by the respondent. This choice can be influenced because in the market *Soygurt* products have not been found with a variety of attractive designs and of course with bottle packaging proved to be able to maintain the quality of the product itself. Third, respondents prefer brands using foreign language terms. Brands with foreign language terms in the market are generally shorter and easier to remember by consumers so that they become more attractive. Fourth, the raw material for pure corn is chosen by the respondents. Fifth, the *Soygurt* product label that is preferred by respondents is displaying nutritional composition and description of *Soygurt* products. This type of consumer assesses that bottle packaging provides a more attractive product appearance. And finally, respondents prefer *Soygurt* products with long-lasting durability. Long durability makes a consumer able to buy large quantities of products for a long period of time so that they can save time and cost of purchase.

### 3.6. Marketing Strategy Analysis with SWOT Matrix

Strengths, weaknesses, opportunities and potential threats of *Soygurt* products are carried out through analysis using the SWOT method. SWOT analysis compares the external factors of opportunities and threats with internal factors of strength (weakness) and weakness (weakness). SWOT analysis systematically identifies various factors to formulate a company strategy. Analysis of internal factors is obtained from interviews and observations which are the identification of the factors that influence the success of the marketing of the instant corn rice industry. This complete internal environmental analysis can be seen in Table 5 and for its external environmental analysis in Table 6.

**Table 5.** Intern Environment Analysis

No	Items	Strength	Weakness
1.	The Advantage of Soygurt Product	√	
2.	Good quality	√	
3.	Good Product Price	√	
4.	Good packaging		√
5.	Soygurt product still needed promotion and communication for marketing		√
6.	Limited budgeting for SME		√
7.	Financial administration is still not done well		√
8.	Traditional Equipment in SME		√
9.	Good Cooperation between sellers and buyers	√	
10.	SMEs needed to improving and developing	√	
11.	SMEs have regular customers	√	

**Table 6.** Eksternal Environment Analysis

No	Items	Opportunity	Threat
1.	<i>Market leader</i>	√	
2.	Product competitor		√
3.	Difficulty for permanent worker		√
4.	The same of raw material used by Industry		√
5.	The development of Information System	√	
6.	Processing Technology Development	√	
7.	High Demand	√	
8.	Goverment Policy for increasing cost of gasoline or diesel raw material		√
9.	Climate Change		√
10.	Broad marketing area	√	

### 3.6.1. Determination of alternative strategies using the SWOT matrix.

This SWOT matrix contains four alternative strategies [12], where each strategy attempts to use strengths and opportunities to overcome weaknesses and threats. Based on the results of the determination of the strategies obtained for *Soygurt* products include:

#### 3.6.1.a. SO (Strengths-Opportunities) Strategy

The SO strategy is to use the power to take advantage of existing opportunities, can be formulated as follows:

- Increasing production volume
- Expanding the marketing network

#### 3.6.1.b WO (Weaknesses-Opportunities) Strategy

The WO strategy is to correct weaknesses to take advantage of existing opportunities, can be formulated as follows:

- Improving the type of product packaging to make it more attractive
- Maximizing promotions and streamlining production
- Improving the system and financial management

#### 3.6.1.c ST (Strengths-Threats) Strategy

The ST strategy is to use the power to anticipate or avoid threats that can be formulated as follows:

- Improving a comfortable working atmosphere in SMEs
- Setting the prices with a cost orientation

#### 3.6.1.d WT (Weaknesses-Threats) Strategy

The WT strategy is to improve weaknesses to overcome existing threats, can be formulated as follows:

- Expanding the information dissemination, promotion, and communication
- Renewing the production system

## 4. Conclusion

The results of the consumer preference that are prioritized on *Soygurt* product attributes in Setia Budi Small and Medium Enterprises have been obtained from research conducted so that these products can be accepted in the market and alternative strategies that need to be done by SMEs so that instant corn rice products are accepted by the market. The main criteria for *Soygurt* product attribute preferences consist of taste, type of packaging, brand, main raw material, product label, and product

durability. Testing the results of Fuzzy AHP shows that the taste of adding strawberries to *Soygurt* is more preferred than the original taste. The choice of preference prefers the type of bottle packaging, the brand uses foreign language terms, Anjasmoro local soybean raw material and instant corn rice products with long-lasting durability. The strategy obtained for *Soygurt* products is SO strategy on increasing production volumes and expanding marketing networks, WO strategy on improving the type of product packaging to be more attractive, maximizing promotion and streamlining production, system improvement, and financial management, ST strategy is carried out on building a comfortable working atmosphere in SMEs and setting prices with cost orientation, and WT's strategy to expand information dissemination, promotion and communication and renew the industrial systems.

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