

EXPLORING CONSUMER PREFERENCES OF SHALLOTS THROUGH CONJOINT ANALYSIS IN THE YOGYAKARTA PROVINCE

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Abstract: Shallots as one of the main consumption ingredients in households and also the culinary industry has an irreplaceable role as a cooking ingredient. Consumer preferences in choosing shallots are important to know. This study aims to determine consumer preferences in Yogyakarta Province regarding shallots based on selected product attributes. This study uses a quantitative descriptive method. The location of the research is in the Special Region of Yogyakarta Province. The respondents used were 100 consumers. Conjoint Analysis is used to find out the preferences of shallot consumers. The results of the analysis showed that the attributes with the highest value in consumer preferences were price with an importance level of 35.01%, followed by scent (25.32%), color (24.62%), and size (15.04%). Pearson's correlation value of r of 0.786 indicates that the model has a fairly strong relationship rate. The combination of consumer preferences formed is shallots at cheap prices, mild aroma, fiery red color, and large size.

Keywords: *Consumers; Preferences; Shallots*

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1. Introduction

Shallots are one of the strategic horticultural commodities in Indonesia that has high economic potential, both as a household consumption ingredient and as the main input in the culinary industry (Suciati et al., 2022). Its irreplaceable role in various cuisines makes shallots an essential commodity that is almost always used in daily cooking activities, so its demand tends to be stable all the time. Along with population growth, urbanization, and the development of the culinary sector and processed food industry, the need for shallots continues to increase. This condition makes shallots not only a consumer commodity, but also an economic commodity that has strategic value in maintaining the stability of food supply and prices. Shallots also have the potential to be developed into derivative products such as fried onions or semi-finished ingredients, which can increase the economic value of the product (Iis Komariah et al., 2024).

In the Special Region of Yogyakarta, shallots are one of the leading horticultural commodities that continue to be developed. Shallot production in this region is supported by suitable agroclimatic conditions and the existence of production centers in several districts (Rahmawati, 2022). Based on BPS data in 2024, shallot production in Yogyakarta Province has increased significantly, especially from 2022 to 2023. In 2022, the production of shallots was 223,066 quintals and increased in 2023 by 329,526 quintals. Shallot production in Yogyakarta still faces various challenges, such as fluctuations in crop yields due to climate change, limited cultivation technology, and price dynamics at the market level.

Shallot products often face issues related to a mismatch between the quality of products available in the market and consumer preferences. Consumers want shallots that are of good quality, affordably priced, and fresh in appearance; however, in reality, the quality of shallots on the market is often inconsistent. High price fluctuations are also a major problem because they affect people's purchasing power and consumer buying decisions. Additionally, suboptimal post-harvest handling can lead to a decline in red onion quality, such as color changes, an overly pungent aroma, inconsistent sizes, and bulbs that spoil quickly during storage. These issues cause consumers to become more selective when choosing red onion products.

Consumer preferences are a very important aspect in determining the direction of the development of shallot agribusiness. Preferences reflect a consumer's preference for a product based on the attributes attached to it. Consumer preferences show consumer preferences from various product choices (Kotler & Keller, 2016). A good understanding of consumer preferences allows business actors, including farmers and distributors, to adjust product quality to the market's desires. The products produced not only meet production standards, but also have added value in accordance with consumer expectations, so that it can increase competitiveness and business sustainability.

Consumers judge shallots not only from the aspect of freshness, but also from their affordability. Price is one of the main attributes because it is directly related to the purchasing power and allocation of household expenditure (Belo et al., 2021). On the other hand, freshness indicators are usually observed through physical attributes such as external appearance, color, size, and aroma that reflect the condition of the product (Alwaniya, 2019; Mulia et al., 2023; Sari et al., 2015). The attributes considered are those that are most easily observed and are often the primary factors consumers take into account when purchasing shallots. Price was selected because it is directly related to consumers' purchasing power and their ability to meet household needs. In addition, these attributes reflect the physical quality and freshness of the shallots, which can influence consumers' perceptions and purchasing decisions. The combination of appropriate price and good physical quality is the basis for consumer consideration in determining purchasing choices. Therefore, this study aims to determine consumer preferences for shallots in the Special Region of Yogyakarta using conjoint analysis.

2. Research Methods

The basic method used in this study is quantitative descriptive. The location of the research was determined purposive. The Special Region of Yogyakarta was chosen as the research location because this province is one of the largest shallot-producing areas in Indonesia and its production has always increased from year to year (BPS, 2025). The sample used in this study amounted to 100 respondents. The determination of the sample size, which states that the minimum sample size in quantitative research ranges from 50 to 200 respondents (Hair et al., 2019). Respondents were determined using accidental sampling by distributing questionnaires to the people of the Special Region of Yogyakarta who purchased shallots. The sample criteria applied in this study were individuals residing in the Special Region of Yogyakarta, aged at least 18 years old, and having purchased shallots at least once a month. Conjoint analysis was used in this study to determine the preferences of shallot consumers. The instruments used in this study were measured using a likert scale of 1-5, namely strongly disagree, disagree, neutral, agree, and strongly agree. The preference attributes used are:

- Price: very cheap, cheap, expensive, and very expensive
- Aroma: not pungent, pungent, and very pungent
- Size: large and small
- Color: fiery red and brownish red

Stimuli are a combination of the levels of attributes used. The stimuli were generated using an orthogonal design with the assistance of IBM SPSS Statistics to produce a more efficient and representative combination of attribute levels. The fractional design technique was employed to obtain stimuli that only measure the main effects, while the interaction effects between attributes were ignored. In this study, utility estimation was used to determine consumer preferences for each attribute level of shallots. Based on the orthogonal design process, the number of profiles obtained was 16 stimuli profiles. The following are the stimuli that were formed:

Table 1. Attribute Combinations

Stimuli	Pricing	Aroma	Size	Color
1	Expensive	Very Pungent	Large	Fiery Red
2	Cheap	Stings	Large	Brownish Red
3	Expensive	Stings	Small	Fiery Red
4	Very Cheap	Very Pungent	Large	Fiery Red
5	Very Cheap	Stings	Small	Fiery Red
6	Very Expensive	Very Pungent	Small	Brownish Red
7	Very Expensive	Mild	Small	Fiery Red
8	Cheap	Very Pungent	Small	Brownish Red
9	Cheap	Mild	Small	Fiery Red
10	Very Expensive	Stings	Large	Brownish Red

11	Very Cheap	Mild	Large	Brownish Red
12	Expensive	Mild	Small	Brownish Red
13	Very Expensive	Mild	Large	Fiery Red
14	Very Cheap	Mild	Small	Brownish Red
15	Cheap	Mild	Large	Fiery Red
16	Expensive	Mild	Large	Brownish Red

3. Result and Discussion

3.1. Characteristics of Shallot Consumers

Table 2. Characteristics of Shallot Consumers

Features	Description	Percentage (%)
Gender	Male	28
	Women	72
Age	Gen Z	23
	Gen Y	42
	Gen X	25
Education	Junior High School	10
	SMA/SMK/SLTA	46
	Diploma	15
	Bachelor	29
Purchase Frequency	Once a month	23
	Once a week	40
	Every day	37

Based on gender, the majority of respondents were women at 72%, which indicates that women still hold a dominant role in making decisions to purchase kitchen necessities, including shallots (Wulandari et al., 2022). Women in the household, as wives, play the role of managing the family's needs, particularly in meeting daily food and consumption needs (Ukhroniyah & Afrizal, 2024). Most of the respondents are in the Generation Y category at 42%, which is the productive age group who generally have families, so they have a higher intensity in purchasing food to meet daily household needs (Ristiana et al., 2022). In terms of education, the majority of respondents had a high school education at 46%, which reflects a sufficient level of understanding in considering aspects of price, quality, and efficiency in shopping. Meanwhile, the frequency of purchases is dominated by a once-a-week purchase pattern of 40%, which indicates a planned consumption behavior, where consumers buy in sufficient quantities to meet their cooking needs for one week while avoiding the risk of quality degradation due to too long storage of raw materials (Mandala et al., 2024).

3.2. Consumer Preferences of Shallots in the Special Region of Yogyakarta

Table 3. Conjoint Analysis Result

Attribution	Value of Interest (%)	Level Atribut	Utility Value
Pricing	35.010	Very Cheap	0.132
		Cheap	0.149
		Expensive	-0.041
		Very Expensive	-0.241
Aroma	25.322	Mild	0.144
		Sting	-0.050
		Very Pungent	-0.095
Size	15.046	Large	0.024
		Small	-0.024
Color	24.621	Fiery Red	0.303
		Brownish Red	-0.303
Pearson's R	0.786	Signifikan	0.000
Kendall's tau	0.683	Signifikan	0.000
Konstanta	3.350		

Table 4. Total Utility Value of the Profile Set

Stimuli	Pricing	Aroma	Size	Color	Total Utility
1	Expensive -0.041	Very Pungent -0.095	Large 0.024	Fiery Red 0.303	0.191
2	Cheap 0.149	Stings -0.05	Large 0.024	Brownish Red -0.303	-0.18
3	Expensive -0.041	Stings -0.05	Small -0.024	Fiery Red 0.303	0.188
4	Very Cheap 0.132	Very Pungent -0.095	Large 0.024	Fiery Red 0.303	0.364
5	Very Cheap 0.132	Stings -0.05	Small -0.024	Fiery Red 0.303	0.361
6	Very Expensive -0.241	Very Pungent -0.095	Small -0.024	Brownish Red -0.303	-0.663
7	Very Expensive -0.241	Mild 0.144	Small -0.024	Fiery Red 0.303	0.182
8	Cheap 0.149	Very Pungent -0.095	Small -0.024	Brownish Red -0.303	-0.273
9	Cheap 0.149	Mild 0.144	Small -0.024	Fiery Red 0.303	0.572
10	Very Expensive -0.241	Stings -0.05	Large 0.024	Brownish Red -0.303	-0.57
11	Very Cheap 0.132	Mild 0.144	Large 0.024	Brownish Red -0.303	-0.003
12	Expensive -0.041	Mild 0.144	Small -0.024	Brownish Red -0.303	-0.224
13	Very Expensive -0.241	Mild 0.144	Large 0.024	Fiery Red 0.303	0.23
14	Very Cheap 0.132	Mild 0.144	Small -0.024	Brownish Red -0.303	-0.051
15	Cheap 0.149	Mild 0.144	Large 0.024	Fiery Red 0.303	0.62
16	Expensive -0.041	Mild 0.144	Large 0.024	Brownish Red -0.303	-0.176

The Pearson's r correlation value of 0.786 shows that the relationship between the attributes of consumer preferences of shallots is in the category of quite strong (Sugiyono, 2022). Based on its level of importance, the price attribute ranks first with a value of 35,010, which confirms that economic factors are a major consideration in the purchase decision. Furthermore, the aroma attribute with a value of 25.322 shows that comfort in the processing process is also an important concern for consumers, although technically fresh shallots generally have a fairly pungent aroma, consumers actually prefer aromas that are not too sharp because they are considered more comfortable and do not interfere with breathing. The color attribute is in third place with a value of 24,621, which reflects the role of visual indicators in assessing the freshness and quality of products. Meanwhile, the size attribute with a value of 15.046 is in last place, although it still contributes in terms of usage efficiency. The combination of the level of importance of these attributes forms the ideal consumer preference of shallots, namely cheap prices, mild aromas, fiery red color, and large size with total utility 0.620.

1. Pricing

The price attribute that shallot consumers prefer is a cheap price with a utility value of 0.149, because this condition allows consumers to make purchases more freely without having to allocate an excess budget, especially considering that shallots are a daily consumption commodity that is purchased regularly. Affordable prices increase utility because consumers can meet their needs without sacrificing other expenses (Angriva & Sunyigono, 2020). Consumers still consider the perception of quality, where prices that are too low can actually raise suspicions about the quality of the product, such as the condition of the onion that is not fresh, the size is not uniform, or the potential for damage.

2. Aroma

The aromatic attribute of shallots that consumers generally prefer is a non-pungent aroma with a utility value of 0.144, as it is closely related to the comfort aspect during the processing process. An overly sharp aroma often causes irritating effects such as pungent eyes and breathing

disturbances, especially when shallots are peeled or sliced in large quantities. This condition can reduce the comfort and efficiency of work in the kitchen, both on a household scale and a culinary business. In addition, consumers also associate a less pungent aroma with the condition of shallots that are quite fresh and do not suffer from excessive damage, so that they still provide optimal taste without annoying side effects.

3. Size

The size attribute of shallots that consumers prefer is a large size with a utility value of 0.024, as it is considered more efficient and practical in its use. Large shallots facilitate the peeling and slicing process, so that it can save time and effort, especially for household consumers and culinary business actors who need a large volume of ingredients. In addition, large size is often associated with better quality, such as thicker tuber meat and a more maintained freshness.

4. Color

The color attribute of shallots that consumers prefer is fiery red with a utility value of 0.303, because the color is the main visual indicator in assessing product quality. Shallots with a bright red color tend to be associated with fresh, non-rotten, and good quality conditions, thus increasing consumer confidence in making purchases (David, 2022). The bright red color is also considered more aesthetically appealing and gives the impression that shallots have a stronger flavor content, so it can improve the taste of the dish.

4. Conclusion

Based on the results of the study, it can be concluded that the attributes that have the main level of importance in the purchase decision of shallots are the price, which shows that economic considerations are the dominant factor for consumers. This reflects that consumers tend to prioritize affordability in meeting their daily food needs. Meanwhile, other attributes such as aroma, color, and size still play a supporting role in shaping overall preferences. The consumer preferences of shallots formed in this study are products with low prices, a mild aroma, a fiery red color, and a large size. Therefore, shallot farmers are expected to continuously improve the quality of their production and be more selective in choosing the varieties to be cultivated so that the harvested products align with consumer preferences. In addition, improving post-harvest handling practices is also important to maintain the quality, freshness, and physical appearance of shallots after harvest, thereby increasing consumer satisfaction and the competitiveness of the product in the market.

References

- Alwaniya, A. (2019). Preferensi Konsumen Terhadap Bawang Merah Lokal Rubaru Di Pasar Banasare. *Jurnal Pertanian Cemara*, 16(1). <https://doi.org/10.24929/fp.v16i1.775>
- Angriva, S., & Sunyigono, A. K. (2020). Persepsi Dan Preferensi Konsumen Terhadap Produk Madu Pt Kembang Joyo. *AGRISCIENCE*, 1(1). <https://doi.org/10.21107/agriscience.v1i1.7850>
- Belo, M. A. S., Apelabi, G. O., & Nong, F. (2021). Pengaruh Harga Dan Kualitas Produk Bawang Merah (*Allium Ascalonicum* L.) Terhadap Keputusan Konsumen Untuk Berbelanja Pada Kebun Praktek Fakultas Pertanian Universitas Nusa Nipa Indonesia. *Jurnal Ilmiah Wahana Pendidikan*, 7(2).
- David, J. (2022). Bawang Merah dan Penyimpanannya Onion and Storage. *Jurnal Pertanian Agros*, 24(3).
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. In *European Business Review* (Vol. 31, Issue 1). <https://doi.org/10.1108/EBR-11-2018-0203>
- Iis Komariah, Anton Anton, Acep Rahmat, & Fiqra Muhamad Nazib. (2024). Pemberdayaan Masyarakat Petani Bawang Merah melalui Pengolahan Bawang yang Tidak Terjual Menjadi Bawang Goreng. *PaKMas: Jurnal Pengabdian Kepada Masyarakat*, 4(1). <https://doi.org/10.54259/pakmas.v4i1.2786>
- Kotler, P., & Keller, K. L. (2016). *Manajemen Pemasaran*. Erlangga.
- Mandala, M. A. A., Anindita, D. C., & Nareswari, H. P. (2024). Hubungan antara Durasi Penyimpanan Umbi dan Kinerja Pertumbuhan serta Hasil Dua Varietas Bawang Merah. *Jurnal Ilmiah Pertanian Nasional*, 5431(2).
- Mulia, S., Surbakti, S., & Yurizki, Y. (2023). Analisis Tingkat Konsumsi dan Preferensi Konsumen Bawang Putih Segar di Kota Medan. 25(3), 2510–2517.
- Nur Rahmawati, A. A. (2022). Varietas Bawang Merah Unggul Spesifik Dari Daerah Istimewa Yogyakarta. *Buletin Teknologi & Inovasi Pertanian*.
- Ristiana, A., Misno, A., & Endri, E. (2022). Analisa Pola Konsumsi Generasi Y Terhadap Produk pada

- Industri Halal di Indonesia (Studi Kasus di Sekolah Tinggi Ekonomi Islam (Ste) Tazkia. *Jurnal Indonesia Sosial Sains*, 3(2). <https://doi.org/10.36418/jiss.v3i1.535>
- Sari, R. N., Wahyudi, D., & Awiyanto. (2015). Preferensi konsumen terhadap bawang merah varietas lokal di Kabupaten Sumenep. *Cemara*, 11(1).
- Suciati, A., Sumadi, S., & Djamali, A. (2022). Strategi Pengembangan Agribisnis Komoditas Bawang Merah di Kabupaten Banyuwangi. *Jurnal Agrinika: Jurnal Agroteknologi Dan Agribisnis*, 6(1). <https://doi.org/10.30737/agrinika.v6i1.2122>
- Sugiyono, D. (2022). Metode penelitian kuantitatif kualitatif dan R&D. In *Penerbit Alfabeta*.
- Ukhroniyah & Afrizal, S. (2024). Strategi Peran Ganda Perempuan sebagai Asisten Rumah Tangga. *Jurnal Pendidikan Sosiologi Universitas Pendidikan Ganesha*, 6.
- Wulandari, N., Indrianti, D. T., & Hilmi, M. I. (2022). Analisis Gender Peran Perempuan Pesisir Pada Ketahanan Keluarga Di Desa Puger Kulon Kabupaten Jember. *Jendela PLS*, 7(1). <https://doi.org/10.37058/jpls.v7i1.4758>