# Analysis of Consumers' Preferences for Melon Using the Conjoint Method

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**Abstract**

*Melon (Cucumis melo L.) is a fruit widely known by the people of Indonesia, including Yogyakarta Province, which has several variants such as C. melo var reticulatus, C. melo var. inodorus, and C. melo var. catalupensis. These variants have different characteristics that can be distinguished by color, aroma, peel texture, as well as their respective markets. To find out consumers' preferences for melon, the conjoint analysis method is used. The results showed that consumers in traditional retail preferred melons with small size, orange flesh, strong aroma, very sweet taste, slightly meshy peel texture, and crunchy flesh texture. Meanwhile, in modern retail, they prefer variants with a large size, green flesh, strong aroma, very sweet taste, non-meshy peel texture, and crunchy flesh texture. Sky Rocket, Glamor, Golden Langkawi, and Mai 119 variants are suitable for traditional and modern retail. There are also other suitable variants for traditional retail, namely Cantaloupe and Roc Melon, while Honey Globe and Action 434 are suitable for modern retail.*

**Keywords:** *conjoint analysis; consumers' preferences; melon*

## 1. INTRODUCTION

Melon is one of the fruit commodities in Indonesia, known and quite popular because of its sweet taste and rich nutrients (Luo et al., 2022). This fruit has quite a variety of characteristics which can be distinguished by shape, size, peel color, fruit flesh, peel texture, and aroma (Huda et al., 2018). There are several variants, and the most popular in Indonesia are *C. melo var. reticulatus, C. melo var. inodorus, and C. melo var. cantalupensis* (Huda et al., 2018). These various variants have different levels of sweetness, fruit color, and size, hence, consumers have individual preferences. In this study, consumers' preferences for melon were analyzed based on traditional and modern retail.

In Yogyakarta Province, melon can be found in markets or retails. Generally, a retailer can be defined as someone who sells products directly to end users and is divided into two categories, namely traditional and modern retail. Melons in Yogyakarta are not only produced by local farmers, but also by outside farmers, such as Central Java. Then the melon was brought by collectors and sold to sellers in various markets and retailers, according to demand from the market. Consumer behavior is a study of how consumers choose, buy, and use a product or service (Kotler & Keller, 2016). Region is one of the factors influencing consumers' behavior, hence, there can be differences in the characteristics of the preferred melon in each region. In this study, an analysis of consumers' preferences for the quality attributes of melon in Yogyakarta was carried out and the results are expected to become a reference for fruit farmers, suppliers, and sellers regarding the variants preferred by the people.

Meanwhile, conjoint analysis is a statistical method for measuring the combination of correlations between variables on a non-metric scale. The results can be used to design a product based on consumers' preferences for the attributes (Sudaryono, 2016). It is also used to determine the importance level of each attribute for consumers' preferences and a design can be made for the evaluation of a product (Leonardo, 2017). In Yogyakarta melon can easily found, either in traditional retail or traditional retail. This study used conjoint analysis to determine the attributes of consumer-preferred melon in traditional and modern retail. From these results, an analysis of melon variants was carried out according to consumers' preferences in each retail. The attributes analyzed were size, flesh color, peel texture, aroma, taste, and melon flesh. The study was conducted using a questionnaire distributed to end users aged at least 18 years who had bought and consumed melon in modern or traditional retail in Yogyakarta Province more than once but sensory tests were not performed.

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## 2. MATERIAL AND METHODS

### 2.1 Materials and Tools

The materials used were data from questionnaires distributed to 100 respondents, with 50 in each retail and the data were in the form of respondent profiles, purchasing location, quality ranking, and combination quality.

The tools used were questionnaires, hardware, and software, the questionnaire was shared to collect the necessary data from the respondents. The hardware used was a laptop to store, process, search for supporting data, as well as compile and write results. The software used included IBM SPSS Statistic 25 to perform data processing using the conjoint method, Microsoft Word to write notes and reports, and Microsoft Excel to process questionnaire data before using IBM SPSS Statisctic 25.

### 2.2 Study Method

#### 2.2.1 Population and Sample

**a. Population**

The population is the entire subject in the form of people, objects, or others with certain characteristics determined according to Siyoto & Sodik, (2015). In this study, the population were end users who had bought and consumed melon more than once and currently live in Yogyakarta, as well as consumers who were at least 18 years old. In the first purchase, consumers might only want to try to find out about the product and in the second, they were assumed to have a preference for the fruit products. The end consumers were assumed to be those who make purchases for consumption, hence the selection was assumed to be following their preferences.

**b. Sample**

The sample is part of the entire population taken with a certain procedure hence, it represents the population (Siyoto & Sodik, 2015). This study used a probability sampling method, namely simple random sampling because the questionnaire was distributed and given to respondents randomly within a population (Budiastuti & Agustinus, 2018).

According to Nurrahmah et al.,(2021), in determining the sample, a cross-sectional sample formula can be used, namely binomunal proportion. When the number of population (N) is known, then the sample search can be done using the formula:

$$n = \frac{Z^2_{1-\frac{\alpha}{2}} p(1-p)N}{d^2(N-1) + Z^2_{1-\frac{\alpha}{2}} p(1-p)} \quad (1)$$

When the number of population (N) is not known or $\frac{N-n}{N-1} = 1$ , then the sample search can be done using the formula:

$$n = \frac{Z^2_{\propto} pq}{d^2} = \frac{Z^2 p(1-p)}{d^2} \quad (2)$$

Description:

n = minimum number of samples required
Z = degree of confidence
p = probability of a representative sample of the population
q = (1-p) = probability of the sample that is not representative of the population
d = error value tolerance

The confidence level was determined at 95%, hence, the value was Z = 1.96. Since the sample population was unknown, p = 50% and q = 50%, while the error value or d was determined by 10%. From these values, the minimum number of samples required is determined using the formula:

$$n = \frac{(1{,}96)^2 \times 0.5 \times 0.5}{(0{,}1)^2} = 96{,}04 \quad (3)$$

Based on the calculation, the minimum number of samples required (n) was 96.04, which can be rounded up to 97. Therefore, the number of respondents used was approximately 100 with a distribution of 50 samples in each retail.

### 2.2.2 Data Analysis

#### a. Validity Test

A measuring instrument should meet the validity and reliability requirements, to prevent the conclusions from being biased. Validity refers to the power of measuring accuracy, which can be measured using the formula:

$$r_{xy} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{[n\sum X^2 - (\sum X^2)][n\sum Y^2 - (\sum Y^2)]}} \quad (4)$$

Description:
rxy = correlation coefficient
∑X = number of item scores (respondents' answers)
∑Y = total score
N = number of samples (respondents)

The validity coefficient ranged from -1.00 to +1.00. The higher the validity coefficient, the better the instrument. A valid instrument has $r_{count} > r_{table}$ (Yusup, 2018).

#### b. Reliability Test

Reliability can be interpreted as the accuracy and precision produced by a measuring instrument in making a measurement (Siyoto & Sodik, 2015). Measuring tools in the form of essays or questionnaires can be tested for reliability using the Alpha Cronbach test with the formula (Yusup, 2018):

$$r_i = \frac{k}{(k-1)}\left\{1 - \frac{\sum s_i^2}{s_t^2}\right\} \quad (5)$$

Description:
$r_1$ = Cronbach alpha reliability coefficient
k = number of question items
$\sum s_i^2$ = number of variance scores for each item
$s_t^2$ = total variance

Item and total variances can be found using the formula (Yusup, 2018):

$$s_i^2 = \frac{JKi}{n} - \frac{JKs}{n^2} \quad (6)$$

$$s_t^2 = \frac{\sum X_t^2}{n} - \frac{(\sum X_t)^2}{n^2} \quad (7)$$

Description:
$s_i^2$ = variant for each item
JKi = the number of the squares of all item scores
JKs = the number of the squares of the subjects
n = number of respondents
$s_t^2$ = total variance
$X_t$ = total score

According to Dewi & Sudaryanto (2020), a reliable instrument has a Cronbach Alpha coefficient > 0.60 (Rosita et al., 2021).

**c. Conjoint Analysis**

Conjoint analysis was used to analyze consumers' preferences for melon in traditional and modern retail based on the following formula (Malhotra, 2004):

$$U(X) = \sum_{i=1}^{mi} \sum_{j=1}^{ki} \beta ij\ Xij \quad (9)$$

Description:

U(X) = total utility

$\beta_{ij}$ = part worth or useful value of the i-th attribute (i, i=1, 2, …, m) j-th level (j, j=1, 2, …, k)

ki = the j-th level of the i-th attribute

mi = number of i-th attribute

$X_{ij}$ = i-th dummy variable attribute level j (1=level appears; 0=does not appear)

Furthermore, a search for the value of relative importance was carried out as the basis for the interpretation of the results. The relative importance can be determined by the following formula (Malhotra, 2004):

$$Wi = \frac{Ii}{\sum_{i=1}^{m} Ii} \times 100\% \quad (10)$$

Description:

$I_i$ = (max ($\beta_{ij}$) – min ($\beta_{ij}$), for each i-th attribute

M = the number of attributes

Table 1. Attributes and their levels

| Attribute | Attribute Level |
|---|---|
| Size (per piece) | Small (< 1.5 kg)<br>Medium (1.5 – 2.5 kg)<br>Large (> 2.5 kg) |
| Flesh color | Green<br>Orange<br>White |
| Aroma | Strong<br>Medium<br>Not aromatic |
| Sweetness | Very sweet (>12· brix)<br>Medium sweet (10-12· brix)<br>Less sweet (8-10· brix) |
| Peel texture | Meshy<br>Slightly Meshy<br>Not Meshy |
| Flesh texture | Crunchy<br>Not Crunchy |

Based on Table 1, 6 quality attributes were analyzed in melon, then a conjoint analysis house-based approach was used (Widayat, 2018). The quality attributes in this study included fruit size, flesh color, aroma, sweetness, peel texture, and flesh texture. The size attribute has small < 1.5 kg, medium

1.5 – 2.5 kg, and large > 2.5 kg levels based on the Indonesian National Standard No. 7783:2013, regarding melon. The flesh color attribute has green, orange, and white attribute levels according to the color of the popular melon variant in Indonesia. Furthermore, the fruit aroma attribute has strong, medium, and non-aromatic levels with the selection referring to the color of the popular melon variant which is popular in Indonesia. The fruit sweetness has very, medium, and less sweet attribute levels, while the selection referred to melon fruit Brix with 8°brix (poor), 10°brix (average), 12°brix (good), 14°brix (very good), hence, 8-10°brix is less sweet, 10-12°brix is medium sweet, and >12°brix is very sweet (Alqoria & Utaminingrum, 2021). The peel texture attribute also has levels of meshy, slightly, and non-meshy based on the color of the popular melon variant in Indonesia. Additionally, the flesh texture attribute has crunchy and non-crunchy levels.

From the table, many possible combinations of attributes were made by multiplying all the number of attribute levels. After multiplying 3x3x3x3x3x2, a combination of attributes that allow a total of 486 stimuli was obtained. The number of combinations can make it difficult for consumers to make preferences, hence, it is necessary to reduce the number by using orthogonal arrays or designs. The orthogonal array creates attribute combinations that control the main influence, thereby reducing the number of combinations formed. This was accomplished using the SPSS software (Sugiharti et al., 2021) which produced about 18 attribute combinations.

## 3. RESULTS AND DISCUSSION

### 3.1 Validity and Reliability Tests

To determine the appropriateness of the questionnaire used in this study, validity, and reliability tests were carried out. The previous questionnaire was distributed to 30 respondents according to Singarimbun & Effendi (1995) which stated that the minimum number of samples for conducting questionnaire testing is 30 samples to make the distribution of values approach the normal curve. An instrument is considered valid when $r_{count} > r_{table}$ (Yusup, 2018), a $r_{table}$ value of 0.361 was obtained with a sample size (n) of 30 and a significance level of 5% (0.05).

Table 2. Validity test results

| No | Statement | $r_{count}$ | $r_{table}$ | Description |
|---|---|---|---|---|
| 1 | Combination 1 | 0.553 | 0.361 | Valid |
| 2 | Combination 2 | 0.626 | 0.361 | Valid |
| 3 | Combination 3 | 0.279 | 0.361 | Invalid |
| 4 | Combination 4 | 0.216 | 0.361 | Invalid |
| 5 | Combination 5 | 0.157 | 0.361 | Invalid |
| 6 | Combination 6 | 0.477 | 0.361 | Valid |
| 7 | Combination 7 | 0.622 | 0.361 | Valid |
| 8 | Combination 8 | 0.397 | 0.361 | Valid |
| 9 | Combination 9 | 0.609 | 0.361 | Valid |
| 10 | Combination 10 | 0.469 | 0.361 | Valid |
| 11 | Combination 11 | 0.388 | 0.361 | Valid |
| 12 | Combination 12 | 0.602 | 0.361 | Valid |
| 13 | Combination 13 | 0.511 | 0.361 | Valid |
| 14 | Combination 14 | 0.493 | 0.361 | Valid |
| 15 | Combination 15 | 0.502 | 0.361 | Valid |
| 16 | Combination 16 | 0.542 | 0.361 | Valid |
| 17 | Combination 17 | 0.694 | 0.361 | Valid |
| 18 | Combination 18 | 0.635 | 0.361 | Valid |

Table 2 shows 15 valid and 3 invalid statements which were combinations 3, 4, and 5, the invalid statements were not used in the questionnaire, because the combinations used in this study were obtained using orthogonal arrays.

An instrument is considered reliable when it has a Cronbach's Alpha coefficient > 0.60 according to Rosita et al., (2021). After the reliability test was carried out, Cronbach's alpha result was 0.83 which is greater than 0.60, hence, the questionnaire used can be considered reliable.

### 3.2 Conjoint Analysis

Analysis of consumer preferences is done by using conjoint analysis. The conjoint analysis perspective is effective in revealing realistic decisions made by consumers regarding the attributes of a product and allows consumers to evaluate a series of alternative combinations of a product's attributes (Wang et al., 2022).

Table 3. Attribute importance level

| Attribute | Traditional Retail | Modern Retail |
|---|---|---|
| Size (per piece) | 16.521 | 15.287 |
| Flesh Color | 19.084 | 16.346 |
| Aroma | 12.124 | 12.757 |
| Sweetness | 29.042 | 34.245 |
| Peel Texture | 11.707 | 11.367 |
| Flesh Texture | 11.522 | 9.998 |

Table 3 shows that traditional and modern retail have the same attribute importance order, namely fruit sweetness, flesh color, size, aroma, peel, and flesh texture.

Table 4. Attribute utility value

| Attribute | Attribute Level | Traditional Retail | | Modern Retail | |
|---|---|---|---|---|---|
| | | *Utility Estimate* | *Std. Error* | *Utility Estimate* | *Std. Error* |
| Size (per piece) | Small (< 1.5 kg) | **0.041** | 0.026 | -0.102 | 0.015 |
| | Medium (1.5 – 2.5 kg) | 0.032 | 0.022 | 0.035 | 0.013 |
| | Large (> 2.5kg) | -0.074 | 0.033 | **0.067** | 0.019 |
| Flesh Color | Green | -0.003 | 0.042 | **0.098** | 0.025 |
| | Orange | **0.128** | 0.026 | 0.038 | 0.015 |
| | White | -0.125 | 0.026 | -0.136 | 0.015 |
| Aroma | Strong | **0.093** | 0.020 | **0.122** | 0.012 |
| | Medium | 0.006 | 0.022 | -0.038 | 0.013 |
| | Not aromatic | -0.099 | 0.021 | -0.084 | 0.012 |
| Sweetness | Very sweet (>12· brix) | **0.295** | 0.036 | **0.294** | 0.015 |
| | Medium sweet (10-12· brix) | 0.133 | 0.033 | 0.177 | 0.019 |
| | Less sweet (8-10· brix) | -0.428 | 0.022 | -0.471 | 0.013 |
| Peel Texture | Meshy | -0.019 | 0.021 | 0.003 | 0.012 |
| | Slightly Meshy | **0.021** | 0.026 | -0.036 | 0.015 |
| | Non-Meshy | -0.003 | 0.025 | **0.033** | 0.015 |
| Flesh Texture | Crunchy | **0.091** | 0.020 | **0.050** | 0.012 |
| | Not Crunchy | -0.091 | 0.020 | -0.050 | 0.012 |
| Constant | | 2.492 | 0.027 | 2.599 | 0.016 |

Based on Table 4, consumers in traditional retail prefer melon that is small in size, has orange flesh, a strong aroma, a very sweet taste, a slightly meshy texture, and a crunchy flesh texture. Meanwhile, in modern retail, melon with large size, green flesh, strong aroma, very sweet taste, non-meshy peel, and crunchy flesh texture was more preferred.

In general, people prefers melon with a sweet taste, crunchy flesh texture, strong aroma, and meshy peel texture (Makful et al., 2017). This is directly proportional to the consumers' preferences in both traditional and modern retail, namely melon with a sweet taste, crunchy flesh texture, and a strong aroma. However, the attributes of meshy peel texture are inversely proportional to consumers' preferences in both traditional and modern retail. In traditional retail, consumers prefer a slightly meshy

peel texture, while in modern retail, they tend to prefer a non-meshy peel texture. This can be caused by flexible consumers' preferences, in general, the melon preferred by people has a high weight and sugar content (Saputra et al., 2021). This is consistent with the results in modern retail which showed that consumers prefer large melon with a very sweet taste. According to Saputra et al., consumers generally prefer melon with a very sweet taste, but in traditional retail, they prefer small varieties. This is presumably because they want fruit that can be consumed immediately after peeling without the need to store any leftovers.

Melon in a retail store does not only consist of one variant but there are several variants with different characteristics because not all consumers have the same preference. Several variants suitable for traditional retail are presented in Table 5, while modern retail is shown in Table 6.

Table 5. Suitable melon variant for traditional retail

| Melon Figure | Melon Variant | Quality Attribute | | | | | |
|---|---|---|---|---|---|---|---|
| | | Sweetness ($^{O}$brix) | Flesh Color | Size (kg/piece) | Aroma | Peel Texture | Flesh Texture |
|  | Sky Rocket | 9-12 | Green | 1,5-3 | **Strong** | Meshy | **Crunchy** |
|  | Glamour (Japanese Melon) | **14-15** | **Orange** | **1-4** | **Strong** | Meshy | **Crunchy** |
|  | Blewah (Cantaloupe) | 8-10 | **Orange** | **0,5-2** | **Strong** | **Slightly Meshy** | **Crunchy** |
|  | Golden Langkawi | **16-17** | White | **1-2** | Not Aromatic | Non-Meshy | **Crunchy** |
|  | Rock Melon | **14-16** | **Orange** | ± 1,5 | **Strong** | **Slightly Meshy** | Non-Crunchy |
|  | Mai 119 | **14** | **Jingga** | **1,3-2,5** | **Strong** | **Slightly Meshy** | **Crunchy** |

**(*) Bold: melon quality attributes according to the analysis of consumers' preferences**

Table 6. Suitable melon variant for modern retail

| Melon Figure | Melon Variant | Quality Attribute | | | | | |
|---|---|---|---|---|---|---|---|
| | | Sweetness ($^{O}$brix) | Flesh Color | Size (kg/piece) | Aroma | Peel Texture | Flesh Texture |
|  | Sky Rocket | 9-12 | **Green** | **1,5-3** | **Strong** | Meshy | **Crunchy** |
|  | Honey Globe | **14-17** | **Green** | **2,5-3** | Medium | **Non-Meshy** | **Crunchy** |

| Melon Figure | Melon Variant | Quality Attribute | | | | | |
|---|---|---|---|---|---|---|---|
| | | Sweetness ($^{O}$brix) | Flesh Color | Size (kg/piece) | Aroma | Peel Texture | Flesh Texture |
|  | Action 434 | **14** | **Green** | **± 2,5** | Medium | Meshy | **Crunchy** |
|  | Glamour (Japanese Melon) | **14-15** | Orange | **1-4** | **Strong** | Meshy | **Crunchy** |
|  | Golden Langkawi | **16-17** | White | 1-2 | Not Aromatic | **Non-Meshy** | **Crunchy** |
|  | Mai 119 | **14** | Orange | 1,3-2,5 | **Strong** | Slightly Meshy | **Crunchy** |

**(*) Bold: melon quality attributes according to the analysis of consumers' preferences**

Sky Rocket Variant is suitable for traditional retail because it has a strong aroma and crunchy flesh texture. Moreover, the green flesh color and medium fruit size are also quite preferred by consumers in traditional retail. The glamor variant is suitable for traditional retail because it has a very sweet taste, orange flesh color, small size, strong aroma, and crunchy flesh texture, while cantaloupe has orange flesh color, small size, strong aroma, slightly meshy peel texture, and crunchy flesh texture. Furthermore, Golden Langkawi is preferred for traditional retail because it has a very sweet taste, small size, and crunchy meat texture, while Rock Melon has a very sweet taste, orange flesh color, strong aroma, and slightly meshy peel texture. Medium fruit size is also quite preferred by consumers in traditional retail, for example, Mai 119 is suitable because it has a very sweet taste, strong aroma, and crunchy flesh texture. Moreover, the orange flesh color and medium size are also quite suitable for consumers in traditional retail.

Sky Rocket is suitable for modern retail because it has green flesh color, large fruit size, strong aroma, crunchy flesh texture, and meshy peel. Honey Globe is suitable for modern retail because it has a very sweet taste, green flesh color, large size, non-meshy peel texture, and crunchy flesh texture, while Action 434 has a very sweet taste, green flesh color, large size, and crunchy flesh texture. Furthermore, Golden Langkawi is good for modern retail because it has a very sweet taste, a non-meshy peel texture, a crunchy flesh texture, and a medium size. Glamor is suitable for modern retail because it has a very sweet taste, large size, strong aroma, crunchy flesh texture, and orange flesh, while Mai 119 has a very sweet taste, strong aroma, and crunchy flesh texture with orange color and medium size.

## 4. CONCLUSIONS

In traditional retail, consumers in Yogyakarta prefer melon with small size, orange flesh, strong aroma, very sweet taste, slightly meshy peel texture, and crunchy flesh texture. Meanwhile, in modern retail, they prefer melon with a large size, green flesh, strong aroma, very sweet taste, non-meshy peel texture, and crunchy flesh texture. Based on the results, Sky Rocket, Glamor, Golden Langkawi, and Mai 119 variants are suitable for both retail. Furthermore, Cantaloupe and Rock Melon are good for traditional retail, while Honey Globe and Action 434 are suitable for modern retail.From atributte importance level and atributte utility value, the seller, both in traditional or modern retail, can provide melons according to consumer preferences. Besides, melon farmers, especially farmers that sell their melon to Yogyakarta Province, can determine which retail they want to focus, so they can choose the melon seeds and treat them wisely in order to get melons that are liked by consumers in Yogyakarta Province. To fulfill consumers' wants, seed developers or melon researches, can develop varieties of

melon seeds that suit consumer preferences in both traditional and modern retail in Yogyakarta Province.

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**REFERENCES**

Alqoria, N. T., & Utaminingrum, F. 2021. Design of Melon Fruit Sweetness Detection System Using Gray Level Co-occurrence Matrix and Support Vector Machine (in Bahasa: Rancang Bangun Sistem Deteksi Kemanisan Buah Melon Menggunakan Gray Level Co-occurrence Matrix dan Support Vector Machine). Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer, 5, pp. 2472-2477.

Budiastuti, D., & Agustinus, B. 2018. Research Validity and Reliability: Analyze with NVIVO, SPSS, and AMOS (in Bahasa: Validitas dan Reliabilitas Penelitian : Dilengkapi Analisis dengan NVIVO, SPSS, dan AMOS). Jakarta: Mitra Wacana Media

Huda, A. N., Suwarno, B. W., & Maharijaya, A. 2018. Characteristics of Melon (Cucumis melo L.) Fruit at Five Stadia of Maturity (in Bahasa: Karakteristik Buah Melon (*Cucumis melo L.*) pada Lima Stadia Kematangan). Jurnal Agroland, 26(1), pp. 298-305. Doi:10.22487/agrolandnasional.v26i1.733.

Kotler, P., & Keller, K. L. 2016. Marketing Management 15e Global Edition. Pearson. Harlow.

Leonardo. 2017. Comparative Application of Conjoint Analysis to Identify User Preferences in Architectural Research (in Bahasa: Perbandingan Penerapan Conjoint Analysis untuk Menemukenali Preferensi Pengguna pada Riset Arsitektur). Kreasi, 2(2).

Luo, D., Pan, X., Zhang, W., Bi, S., & Wu, J. 2022. Effect of Glucose Oxidase Treatment on The Aroma Qualities and Release of Cooked Off-odor Components from Heat-treated Hami Melon Juice. *Food Chemistry*, 371. Doi:10.1016/j.foodchem.2021.131166.

Makful, Hendri, & Sahlan. 2017. Evaluation of Two Candidate Superior Varieties of Melon (in Bahasa: Evaluasi Dua Calon Varietas Unggul Melon). Jurnal Hortikultura, 27(2), pp. 185-194. Doi:10.21082/jhort.v27n2.2017.

Malhotra, N. K. 2004. Marketing Research, An Applied Approach Indonesian Edition (In Bahasa: Riset Pemasaran, Pendekatan Terapan Edisi Bahasa Indonesia*)*. Jakarta. Indeks Kelompok Gramedia.

Nurrahmah, A., Rismaningsih, F., Hernaeny, U., Pratiwi, L., Wahyudin, Rukyat, A., . . . Setiawan, J. 2021. Introduction to Statistics 1 (in Bahasa: *Pengantar Statistika 1)*. Bandung: Media Sains Indonesia.

Rosita, E., Hidayat, W., & Yuliani, W. 2021. Validity and Reliability Test of Prosocial Behavior Questionnaire (in Bahasa: Uji Validitas dan Reliabilitas Kuesioner Perilaku Prososial). *Fokus*, 4(4).

Saputra, H. E., Salamah, U., Herman, W., & Mustafa, M. 2021. Fruit Performance of 26 Melon (Cucumis melo L.) Genotypes in Axis Hydroponic Cultivation System (in Bahasa: Keragaan Buah 26 Genotipe Melon (Cucumis melo L.) pada Sistem Budidaya Hidroponik Sumbu). Jurnal Ilmu-Ilmu Pertanian Indonesia, pp. 61-65. Doi:10.31186/jipi.23.1.

Singarimbun, E., & Effendi. 1995. Survey Research Methods (in Bahasa: Metode Penelitian Survey). Jakarta: Pustaka LP3ES

Siyoto, S., & Sodik, M. A. 2015. Basis of Research Methodology (in Bahasa: Dasar Metodologi Penelitian). Sleman: Literasi Media Publishing.

SNI. 2013. Indonesian National Standard (In Bahasa: *Standar Nasional Indonesia) 7783:2013 (Melon)*. Retrieved from FDOKUMEN: https://fdokumen.com/document/standar-nasional-dengan-sni-7313-103-melon-harus-memenuhi-syarat-dibawah-batas.html. Accessed on March 17th 2022.

Sudaryono. 2016. Educational Research Methods (in Bahasa: Metode Penelitian Pendidikan). Jakarta: Kencana.

Sugiharti, L., Farihah, E., Hartadinata, O. S., & Ajija, S. R. 2021. Multivariate Statistics for Economics and Business Using SPSS Software (in Bahasa: Statistik Multivariat untuk Ekonomi dan Bisnis Menggunakan Software SPSS). Surabaya: Airlangga University Press.

Wang, L., Xu, Y., Lee, H., & Li, A. (2022). Preffered Product Attributes for Sustainable Outdoor Apparel: A Conjoint Analysis Approach. Sustainable Production and Consumption Vol. 29, pp. 657 - 671. Doi:10.1016/j.spc.2021.11.01.

Widayat. 2018. Multivariate Statistics (in Management and Business) (in Bahasa: Statistika Multivariat (Pada Bidang Manajemen dan Bisnis)). Malang: UMM Press.

Yusup, F. 2018. Test the Validity and Reliability of Quantitative Research Instruments (in Bahasa: Uji Validitas dan Reliabilitas Instrumen Penelitian Kuantitatif. Jurnal Tarbiyah: Jurnal Ilmiah Kependidikan, 11(1).