

PALATABILITY AND ACCEPTABILITY OF SWEET POTATO SPREAD

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Abstract

This study was conducted to measure the palatability and acceptability of sweet potato spread to the Generation Z. The participants of the study were from barangays BongaMenor, Poblacion and, San Pedro in Bustos, Bulacan using non- probability sampling technique. The respondents answered an evaluation form which was made to assess and measure the palatability and acceptability of sweet potato spread. The researchers utilized the descriptive survey design in which the questionnaire-checklist instrument was utilized in gathering the needed data. The first part of the questionnaire consisted of the preferences of the respondents in selecting breads and bread spreads. The second part of the survey rated the palatability factors of the sweet potato spread. Frequency counts and weighted means were used to describe the respondents' profile, bread and bread spread preferences and evaluation of the product. The findings showed that the respondents' assessment of the sweet potato spread is relatively high when it comes to taste, aroma, sweetness, and creaminess as well. The palatability and acceptability factors also showed in the results of this study. One of the recommendations of the researchers is innovating and improving the product's taste, sweetness, and aroma of sweet potato spread if one is trying to consider launching it to the public as it is the criteria that possess satisfying factors to the Generation Z respondents.

Keywords: Acceptability. Palatability, Sweet Potato, Spread

Introduction

In many countries, sweet potato has been the food for survival. According to studies it is the most important food crops for human consumption in the whole world. Sweet potato is widely known as a root-crop which is used in different foods as an ingredient and eaten boiled, baked, or fried. A lot of people enjoys sweet potato in their own way. Sweet potatoes are the fifth most important fresh-weight food crop in developing countries in terms of annual production, after rice, wheat, maize and cassava. According to The Catalyst, the root tuber earns the reputation of being a “poor man’s diet” because sweet potatoes are one of the cheapest staples in developing countries and even a hard-up man can readily afford to buy it. However, sweet potato is far from being lowly in terms of nutrients. Rather, it is immensely rich in many vitamins, minerals, and fiber and even possesses anti-inflammatory properties.

In the 21st century, sweet potato is a root tuber that is common in some growing countries. It grows in tropical countries like the Philippines. It is also sometimes defined as a ‘poor man’s food’. It is because anyone can afford it even those who experience financial hardships. According to The Catalyst, many people ignore this root tuber and do not even give importance to its health benefits.

Sweet potato yields are ultimately determined by the number of sweet potato plants per acre, the number of storage roots per plant, and the size of each storage root at harvest. Fields with comparable plant densities that remain in the field for the same amount of time might have radically varied yields under commercial production circumstances. This is most likely due to factors that influence storage root start up. Unlike the bulking of sweet potato storage roots in the last third of the growing season, sweet potato root number is determined early in the production cycle. Current

research has found that environmental and cultural conditions during the first 2 weeks to 30 days after transplanting are critical in deciding the number of storage roots initiated per plant. In the production environment, every season is different and unique. This publication provides a brief introduction to maximizing storage root initiation.

The Generation Z is one of the most unique generations among all others. According to a study, Generation Z is more keenly about their actions and decisions especially those that can affect their physical appearance and lifestyle in general. They choose to be more practical and promote healthy living as well. When it comes to food, Gen Z wants healthy, convenient options. According to the Nielsen Global Health & Wellness Survey, Generation Z is more willing to spend more expensive for healthy products, such as all natural, GMO-free, sustainable, or vitamin-fortified foods. Generation Z members are seeking out portable and easy-to-prepare foods, but they are also choosing healthy items when they do (Howe & Straws, 2008). In collaboration with what has mentioned, this study aimed to introduce an innovative sweet potato spread to Generation Z. It will be a helpful part for their lifestyle and may not have to spend more with the introduction of the sweet potato spread. It will also help how the Generation Z will use this sweet potato spread as their preference in the future.

Specifically, the research study sought answers to the following questions:

1. How may the respondents be described in terms of:
 - 1.1 age;
 - 1.2 address;
2. How may the respondents be described in terms of:
 - 2.1 preferred bread spread;

- 2.2 considerations in selecting bread spread;
 - 2.3 frequency of consuming bread;
 - 2.4 preference of bread spread;
 - 2.5 awareness about plant-based spread;
 - 2.6 actual consumption of plant-based spread; and
 - 2.7 willingness to try plant-based spread
3. How may the respondents assess the palatability and acceptability factors of sweet potato spread in terms of:
- 3.1 taste;
 - 3.2 sweetness;
 - 3.3 aroma;
 - 3.4 appearance; and
 - 3.5 texture

This study aimed to determine the palatability and acceptability of the sweet potato spread as evaluated by the Generation Z respondents. It will be beneficial to Generation Z because they will have additional information about sweet potato and evaluate the sweet potato spread as well. The Hospitality Management and Culinary students will also benefit to this study as it may serve as their guide or reference in developing same product or an innovation of sweet potato. Also, future researchers can use this study as their guide or reference if they want to do other paper in line with this research study. And lastly, food manufacturing companies will benefit to this study or even small business because they will have an idea and additional knowledge specifically, the palatability and acceptability of the sweet potato spread.

Model of the Study

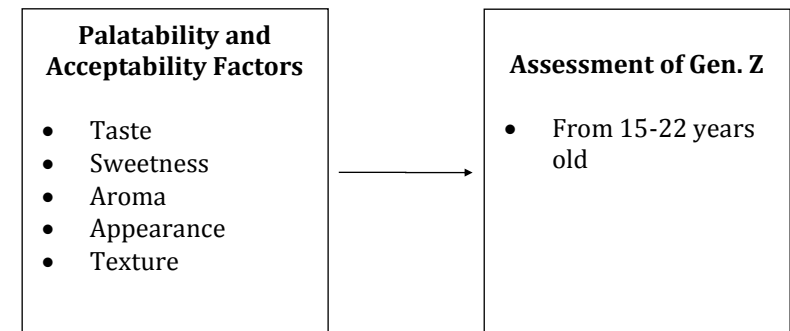


Figure 1. Conceptual Framework

Figure 1 describes the conceptual framework of the study cohere in consists of the following variables: evaluation of taste, sweetness, aroma, appearance and texture Z in Bustos, Bulacan. The independent variable which is the palatability and acceptability factors, and the assessment of Generation Z being the dependent variable. The data collected through the use of questionnaire and undergone statistical treatment. Thus, results became a basis of the palatability and acceptability of the Generation Z towards sweet potato spread. The newer generation that always consumes unhealthy trendy foods. The conceptual paradigm showed how the researchers determine the variables, will gather the pertinent data and was treated.

Method

Descriptive research design was used in this research study to investigate one or more variables. Research instrument used were survey questionnaires to gather data and information that will help it to be definitive. It consisted of different parts that shows the respondent's demographic profile and followed by some questions to assess the palatability and acceptability factors of sweet potato spread.

The self-made questionnaires were sent to the respondents. Since it is conducted during the pandemic, Google forms served as the survey material for this study. Afterwards, the sample of the innovated product was tasted by the respondents and asked them to evaluate it. The questionnaire was consisting of open and close ended questions which were all stated in English. Choices were also provided for the respondents to answer the questionnaires easily.

Frequency counts and weighted means were used to describe the respondents' profile, bread and bread spread preferences and evaluation of the product. Study used convenience non- probability sampling technique. The data gathered was arranged using quantitative and qualitative method and expressed by Likert Scale. The sample demographic characteristic is summarized by the use of descriptive statistics. The researcher then arranged the questions and the results of the input of respondents.

Results

Table 1
Mean and Standard Deviation Interpretation for Respondents' Age

	Inventory Score		
	<i>N</i>	<i>M</i>	<i>SD</i>
Age	93	19.77	1.75

Table 1 presents the mean and standard deviation of the age ($M=19.77$, $SD= 1.75$, $N=93$) of the respondents in this study. It shows that the study involved Generation Z respondents whose ages vary from 15 to 22.

Table 2
Frequency and Percentage Distribution of Respondents according to Address

Address	Frequency	Percentage
Poblacion	33	35.5
BongaMenor	31	33.3
San Pedro	29	31.2
Total	93	100.0

Table 2 presents the distribution of respondents according to their address. As shown in the table, the respondents came from three barangays in Bustos. Among the 93 respondents, a total of 35.5% of them are from Poblacion; 33.3% are from BongaMenor; and 31.2% came from San Pedro.

Table 3
Frequency and Percentage Distribution of Respondents in Terms of Preferred Bread Spreads

Preference	Frequency	Percentage
Cheese	46	49.5
Mayonnaise	26	28.0
Butter	11	11.8
Fruit jams	5	5.4
Meat-based spreads	5	5.4
Total	93	100.0

Table 3 presents the data from the respondents when asked about their preferred bread spreads. As shown in the table, 49.5% of them prefer cheese. Meanwhile, 28.0% of the respondents prefer mayonnaise. In addition, 11.8% chose butter, 5.4% selected fruit jams, and another 5.4% prefer meat-based spreads.

Table 4
Frequency and Percentage Distribution of Respondents in Terms of Consideration in Selecting Bread Spreads

Consideration	Frequency	Percentage
Price	40	43.0
Brand	36	38.7
Availability in the market	13	14.0
Ingredients used	3	3.2
Family's choice	1	1.1
Total	93	100.0

Table 4 presents the data from the respondents when asked about their considerations in choosing bread spreads. As shown, 43.0% of them said that price is their main consideration; 38.7% said that they base it on the product's brand; 14.0% considers the availability of the product in the market; three 3.2% select product based on its ingredients; and one 1.1% respondent said that family's choice is the main consideration. Majority of the respondents answered price is their consideration.

Table 5
Frequency and Percentage Distribution of Respondents' Frequency of Consumption of Bread

Frequency of Consumption	Frequency	Percentage
Everyday	27	29.0
Once a week	12	12.9
Twice a week	22	23.7
Thrice a week	32	34.4
Total	93	100.0

Table 5 shows the data from the respondents when asked about how frequent they consume bread at home. As shown in the table, 29.0% of the respondents said that they eat bread everyday; 34.4% said they eat bread thrice a week; 23.7% respondents said they eat bread twice a week; and only 12.9% of the respondents said they eat bread only once a week. This shows that bread is a part of the diet of the respondents from Generation Z.

Table 6
Frequency and Percentage Distribution of Respondents' Preference of Bread Spread

Preference	Frequency	Percentage
Yes	80	86.0
Maybe	12	12.9
No	1	1.1
Total	93	100.0

When asked whether they like to consume their bread with spread, a total of 86.0% of the respondents said that they prefer it. Meanwhile, 12.9% of the respondents are not sure if they prefer bread with spread. Finally, only one 1.1% respondent said he does not like bread with spread.

Table 7
Frequency and Percentage Distribution of Respondents' Awareness about Vegetable-Based Spreads

Awareness	Frequency	Percentage
Yes	18	19.4
No	75	80.6
Total	93	100.0

Table 7 presents the data from the respondents when asked whether they are aware of vegetable-based spreads. As shown in the table, 80.6% of the respondents said that they are not aware of such variety of spread. Only 19.4% of them are aware that vegetable-based spreads exist. This shows that the Generation Z respondents need to become more aware of the presence of these varieties of spreads in the market.

Table 8
Frequency and Percentage Distribution of Respondents' Actual Consumption of Vegetable-Based Spreads

Actual Consumption	Frequency	Percentage
No	80	86.0
Yes	13	14.0
Total	93	100.0

Table 8 shows the data from the respondents when asked whether they have actually tried vegetable-based

spreads. A total of 86.0% of the respondents said they have not tried it, while only 14.0% of them have actually tried vegetable-based spreads in the market.

Table 9
Frequency and Percentage Distribution of Respondents' Willingness to Try Vegetable-Based Spreads

Willingness	Frequency	Percentage
Yes	77	82.8
Maybe	11	11.8
No	5	5.4
Total	93	100.0

Table 9 shows the data from the respondents when asked if they are willing to try vegetable-based spreads. Majority of them, 82.8%, said that they are willing to try. 11.8% are not sure whether they would want it or not. Finally, only 5.4% said they are not willing to try vegetable-based spreads.

Table 10
Frequency and Percentage Distribution of Taste as Perceived by the Respondents

Taste	Frequency	Percentage
Very Satisfied	59	63.4
Satisfied	33	35.5
Unsatisfied	1	1.1
Total	93	100.0

Table 10 shows the data from the respondents when asked about the taste of the sweet potato spread. As shown in the table, 63.4% of the 93 respondents said that the taste is very satisfying; 35.5% of the respondents are satisfied with its taste; and only one 1.1% is unsatisfied.

Table 11

Frequency and Percentage Distribution of Sweetness as Perceived by the Respondents

Sweetness	Frequency	Percentage
Very Satisfied	55	59.1
Satisfied	38	40.9
Total	93	100.0

Table 11 presents the data from the respondents when asked about their perception of the product's sweetness. As shown in the table, 59.1% of the 93 respondents said that they are very satisfied with the product's sweetness. Meanwhile, 40.9% of them said that they are satisfied. None of the respondents said they were not satisfied with the product's sweetness at all.

Table 12

Frequency and Percentage Distribution of Aroma as Perceived by the Respondents

Aroma	Frequency	Percentage
Very Satisfied	40	43.0
Satisfied	52	55.9
Unsatisfied	1	1.1
Total	93	100.0

Table 12 shows the data from the respondents when asked about the aroma of the sweet potato spread. As shown, majority of the respondents, 55.9%, said that they are satisfied with the aroma. Moreover, 43.0% of the respondents are very satisfied with its smell, while only one 1.1% is not satisfied at all. There are more respondents who

are satisfied compared to those who are very satisfied. This means the product may be further improved in terms of its aroma or smell.

Table 13

Frequency and Percentage Distribution of Appearance as Perceived by the Respondents

Appearance	Frequency	Percentage
Very Satisfied	57	59.1
Satisfied	37	39.8
Unsatisfied	1	1.1
Total	93	100.0

Table 13 presents the data from the respondents when asked about the appearance of the spread. As shown, majority of the respondents, 59.1%, said that they are very satisfied with the appearance. In addition, 39.8% of the respondents are satisfied with its appearance. Only one 1.1% is not satisfied at all.

Table 14

Frequency and Percentage Distribution of Texture as Perceived by the Respondents

Texture	Frequency	Percentage
Very Satisfied	71	76.3
Satisfied	22	23.7
Total	93	100.0

Table 14 presents the data from the respondents when asked about the texture of the spread. As shown in the

table, 76.3% of the respondents are very satisfied with how creamy and soft the spread is. Meanwhile, the remaining 23.7% of the respondents are still satisfied with the product's texture. None of them said they were not satisfied at all.

Table 15

Mean and Standard Deviation Interpretation of the Criteria in Evaluating the Sweet Potato Spread

Criteria	Inventory Score			
	N	M	SD	Interpretation
Texture	93	2.76	0.43	Very Satisfied
Taste	93	2.62	0.51	Very Satisfied
Appearance	93	2.60	0.49	Very Satisfied
Sweetness	93	2.59	0.49	Very Satisfied
Aroma	93	2.42	0.52	Very Satisfied

Table 15 presents the mean, standard deviation, and interpretation for each of the criteria in evaluating the sweet potato spread. As shown in the table, the respondents are very satisfied in all five criteria. These criteria include the following from highest to lowest rating: texture ($M = 2.76$, $SD = .43$, $N > ^3 7$); taste ($M = 2.62$, $SD = .51$, $N > ^3 7$); appearance ($M = 2.60$, $SD = .49$, $N > ^3 7$); sweetness ($M = 2.59$, $SD = .49$, $N > ^3 7$); and aroma ($M = 2.42$, $SD = .52$, $N = 93$).

These are good indicators of the respondents' satisfaction with the product. This means that the spread is very satisfying to the Generation Z respondents.

Table 16

Correlation of Respondents' Age and their Perception about the Sweet Potato Spread

Variable	Statistical Treatment	Age
Taste	Pearson Correlation	.387**
	Sig. (2-tailed)	.000
	N	93
Sweetness	Pearson Correlation	.205**
	Sig. (2-tailed)	.049
	N	93
Aroma	Pearson Correlation	.249**
	Sig. (2-tailed)	.016
	N	93
Appearance	Pearson Correlation	.089
	Sig. (2-tailed)	.399
	N	93
Texture	Pearson Correlation	.119
	Sig. (2-tailed)	.256
	N	93

Spearman rank-order correlation was used to determine the relationship between the respondents' age and their rating of the sweet potato spread based on the five criteria indicated.

As shown in the table, among the five criteria, there are three which were found to have a significant relationship with the respondent's age. First of this is the taste ($r = .387$, $N = 93$, $p < 0.001$). This means that as the age increases, the taste becomes more satisfying. This could mean that although the respondents came from Generation Z, younger

respondents are not as satisfied compared to more matured ones. Same is true with the correlation between age and their perception about the product's sweetness ($r = .205$, $N = 93$, $p = 0.049$). Again, this could mean that the older the respondent, the more satisfied they get with the sweetness of the spread. Finally, the study is also true in terms of the correlation between age and perception on aroma ($r = .249$, $N = 93$, $p = .016$). This once again shows that the older respondents are more satisfied with the product's aroma than the younger ones which include teenagers.

In terms of the correlation between age and appearance ($r = .089$, $N = 93$, $p = .399$), and the correlation between age and texture ($r = .119$, $N = 93$, $p = .256$), it can be seen that there are no significant relationships in these pairings. These mean that both the younger and the older members of the group of respondents are just as satisfied in terms of the mentioned criteria.

It is worth mentioning that the individuals from older generations, such as millennial, Generation X, and Boomers, may also be included in a similar study to see if the product is really more appealing to older tasters as evident in the results.

Conclusion

Based on the data gathered and results of the study, the researchers concluded the following:

1. The respondents varied in age from 15 to 22, with the majority residing from Poblacion, Bustos Bulacan, as per the data. According to the results, respondents with spread. Using all of the information acquired, the researchers came to the conclusion that bread is a staple food for them. Furthermore, it implies that the respondents frequently consume bread and bread spread. In addition, the researchers found that

respondents are unfamiliar of vegetable-based spread. As a result, respondents need to be more aware of various spread types in the market.

2. The respondents evaluated that the product's taste, sweetness, aroma, appearance, creaminess, and softness were all highly satisfying. This indicates how satisfied the respondents are with the product. As a result, the spread is quite satisfactory to the respondents, and therefore has the potential to be of public interest.
3. The findings revealed that among the five criteria, there are three (taste, sweetness, and aroma) which were found to have a significant relationship with the respondent's age. This means that the product's taste, sweetness, and aroma become more pleasing as it ages. This could also indicate that, despite being from Generation Z, younger respondents are less satisfied than older respondents. Whereas, it can be observed that there are no significant relationships in terms of age, appearance, or texture of the product. As a conclusion, in terms of the aforementioned criteria, both the young and the old are equally satisfied.
4. According to the data gathered, pricing is one of the factors to consider when choosing a bread spread. Considering sweet potatoes are abundant in supply and production in the Philippines, the sweet potato spread may be less expensive. Consumers will become more aware of this spread's availability on the market, and they will prefer to use it as a healthy choice spread.
5. This generation of consumers is very willing to try this type of vegetable-based spread product. Therefore, if sweet potato spread were more readily available, then consumers would be able to try this bread spread because it is accessible in the market. They will

become more aware of the product and become more conscious of the health benefits that may accrue from its main ingredient, which is the sweet potato.

Recommendations

This study has contributed to the understanding of society's evaluation and preferences about the sweet potato and sweet potato spread. As the study progressed, a few areas surfaced as suggested areas for future studies. The recommendations are as follows:

1. The researchers recommend innovating and improving the product's taste, sweetness, and aroma of sweet potato spread if one is trying to consider launching it to the public as it is the criteria that possess satisfying factors to the Generation Z respondents.
2. The researchers recommend that the small business and entrepreneurs have to produce, launch and introduce bread spreads that are made from vegetable-based product, so that the consumers will have the idea and knowledge that this form of bread spread can be an alternative if the known and common type of spreads like cheese and mayonnaise are not available in the market.
3. The researchers recommend that the consumer from Generation Z have to become more aware and knowledgeable that vegetable-based spreads like sweet potato spreads are healthier than any various bread spreads available in the public market. Since, this generation was mentioned as the most concerned about their image and physical appearance.
4. The researchers recommend that this type of bread spread should be available on the market. Since sweet potato is a staple food in the Philippines, this main ingredient is widely available. As a result, there is a

chance that this sweet potato spread will have lower market prices than other types of spreads such as cheese, mayonnaise, and others.

5. Lastly, the researchers recommend that small programs be implemented to address and educate the public about sweet potato spread. This may persuade their staff members to start their own businesses if they pursue it in the future. Future entrepreneurs will be created, and they will have an impact on society in the long run.

Recipe of Sweet Potato Spread

Ingredients:

2 Large sweet potatoes
2 cans of evaporated milk
4 tbsp of honey
Pinch of salt

Procedure:

1. In a saucepan, cover sweet potato with water and bring to boil.
2. Simmer over a medium heat until sweet potatoes are soft when pierced with fork.
3. Remove from the saucepan. When cool remove the skin and make it puree.
4. Turn on again the pan with low heat and combine all the remaining ingredients to the saucepan.

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