


International Conference on Business and Technology

ICBT 2021: **Impact of Artificial Intelligence, and the Fourth Industrial Revolution on Business Success** pp 291–316

Consumer Preferences on Packaging Materials of Food Spread Products

[Ikarastika Rahayu Abdul Wahab](#) , [Vanessa Carmel Lopez](#),
[Norlaila Azua Roslan](#) & [Saranya Muthu](#)

Conference paper | [First Online: 30 July 2022](#)

109 Accesses

Part of the [Lecture Notes in Networks and Systems](#) book series (LNNS, volume 485)

Abstract

As opposed to today's packaging trends, the key focus of packaging used to be on the covering and safety aspects of the product. At the same time, nowadays, consumers are looking for packaging that offers convenience, reliable functionality and also appearance. In addition, major improvements in food distribution have affected food packaging due to environmental issues, including the globalization of the food supply, consumer preferences for fresher and more convenient foods, as well as a preference for healthier and higher-quality foods. Consumers are

requesting that food packaging materials be more natural, disposable, potentially biodegradable, and recyclable. Thus, this survey is mainly aiming to investigate the customer's opinion and view on the types of packaging and the criteria of the packaging of food spreads available in the market.

Biodegradable plastic tube packaging was suggested in this survey in order to introduce a new form of packaging for food spreads products. A survey was conducted to discover answers to unique and relevant questions about the opinion of consumers and view on the types of packaging and the criteria of the packaging of food spreads. The survey questions covered a wide variety of subjects. The questionnaire was answered by 152 female and male respondents. A survey was conducted via online using Google Form. Findings from the study showed mix responses and opinions on the packaging preferences of the food spread products with more than 50% of the respondents agreed with the conception of plastic tube food spreads packaging. The choice and preferences are based on the individual's personal likings and experience of use of the current products in the market. The choice of selection of the types and preference of the packaging of food spreads does not correlate with the consumers' demographic with no significant difference ($p > 0.05$). The choice and preferences are based on the individual's personal likings and experience of use of the current products in the

market. The data obtained were also highly consistent and valid as the value was proven through Cronbach's alpha coefficient ($\alpha = 0.957$) which was bigger than 0.8. It can be concluded that plastic tube packaging can be a potential form of new packaging for food spreads products in the future market that could add value to the food products particularly. The marketing function of consumer packaging seems to be recognized among practitioners, yet academic research in this area is still quite limited. Therefore, this study is the first to provide broad information about Malaysian consumers' perception of food spread packaging materials, properties and sustainability. Findings from this study can contribute to further detailed consumer studies in product-specific packaging designs and application.

Keywords

Food spread Plastics Food packaging

Marketing Consumer preferences

This is a preview of subscription content, [access via your institution.](#)

▼ Chapter

EUR 29.95

Price includes VAT (Malaysia)

- DOI: 10.1007/978-3-031-08093-7_20
- Chapter length: 26 pages
- Instant PDF download
- Readable on all devices

- Own it forever
- Exclusive offer for individuals only
- Tax calculation will be finalised during checkout

Buy Chapter

> eBook	EUR 213.99
> Softcover Book	EUR 249.99

[Learn about institutional subscriptions](#)

References

Adebayo, F.O., Abdus Salam, R.O.: Comparative studies on mixed fruit jam packaged in different local containers. *Afr. J. Food Sci. Technol.* **8**(4), 63–66 (2017)

Aslam, A., et al.: Studying the influence of packaging materials and storage on the physiochemical and microbial characteristics of black plum (*Syzygium cumini*) jam. *J. Food Process. Preserv.* **43**(5), e13941 (2019)

Day Job.com. <https://www.dayjob.com/safe-food-handling-1150/>. Accessed 30 July 2021

Draskovic, N.: Packaging convenience: consumer packaging feature or marketing tool? *Int. J. Manag. Cases* **12**(2), 267 (2010)

Eldesouky, A., Pulido, A.F., Mesias, F.J.: The role of

packaging and presentation format in consumers' preferences for food: an application of projective techniques. *J. Sens. Stud.* **30**(5), 360–369 (2015)

Guillard, V., Gaucel, S., Fornaciari, C., Angellier-Coussy, H., Buche, P., Gontard, N.: The next generation of sustainable food packaging to preserve our environment in a circular economy context. *Front. Nutr.* **5**, 121 (2018)

Han, J.W., Garcia, L.R., Qian, J.P., Yang, X.T.: Food packaging: a comprehensive review and future trends. *Compr. Rev. Food Sci. Food Saf.* **17**, 860–877 (2018)

Jabeen, N., Majid, I., Nayik, G.A.: Bioplastics and food packaging: a review. *Cogent Food Agric* (2015)

Kaewprachu, P., Rawdkuen, S.: Application of active edible film as food packaging for food preservation and extending shelf life (2016)

Kocamanlar, E.: Ambalaj ve Fonksiyonları, *Ambalaj Bülteni*, pp. 34–38 (2009)

Konrad K.: The Importance of Product Packaging & Branding. <https://fleximize.com/articles/012727/the->

[importance-of-product-packaging](#). Accessed 30 July

2021

Food Safety Manual 1: Food Safety Training Manual, pp. 1–12 (2006)

Marsh, K., Bugusu, B.: Food packaging – role, materials, and environmental issues. *Inst. Food Technol.* **72**(3), 39–55 (2007)

Naveed, T., Akhtar, I., Cheema, K.R.: The impact of innovation on customer satisfaction and brand loyalty: a case study of student of Faisalabad Pakistan. *Munich Personal RePEc Archive*, pp. 2–9 (2012)

Ncube, L.K., Ude, A.U., Ogunmuyiwa, E.N., Zulkifli, R., Beas, I.N.: Environmental impact of food packaging materials - a review of contemporary development from conventional plastics to polylactic acid based materials. *Materials* **13**, 4994 (2020)

Ribeiro, A.P.L., Carneiro, J.D.D.S., Ramos, T.D.M., Patterson, L., Pinto, S.M.: Determining how packaging and labeling of Requeijão cheese affects the purchase behavior of consumers of different age groups. *Br. Food J.* (2018)

Rinkesh: What are biodegradable plastics.

<https://www.conserve-energy-future.com/advantages-disadvantages-uses-biodegradable-plastics.php>. Accessed 6 Oct 2020

Risk Assessment Studies Report No. 47: Safety Issues of Baby Bottles and Children's Tableware. Risk Assessment Section Centre for Food Safety, pp. 1–57 (2012)

Robertson, G.L.: Chapter 6 Sealing Packages. In: An Introduction to Food Packaging, pp. 1–13 (2012)

Romeo, J.: Bioplastics and the Future of Food Packaging.
<https://www.foodqualityandsafety.com/article/bioplastics-and-the-future-of-food-packaging/>. Accessed 6 Oct 2020

SandlerResearch, Tube Packaging Market Seeing Emergence of Airless Tubes and Growing at 6% CAGR to 2019. <https://www.prnewswire.com/news-releases/tube-packaging-market-seeing-emergence-of-airless-tubes-and-growing-at-6-cagr-to-2019-552978091.html>. Accessed 30 July 2021

Seongyoung, K., Aungkana, O., Nattinee, B., Chansuk, Y., Jungwook, C., Seonghyuk, K.: A short review of light barrier materials for food and

beverage packaging. *Korean J. Packag. Sci. Technol.* **24**, 141–148 (2018)

Shakerardekani, A., Karim, R., Ghazali, H.M., Chin, N.L.: Textural, rheological and sensory properties and oxidative stability of nut spreads—a review. *Int. J. Mol. Sci.* **14**, 4223–4241 (2013)

Tang, Y.M., Chau, K.Y., Xu, D., Liu, X.: Consumer perceptions to support IoT based smart parcel locker logistics in China. *J. Retail. Consum. Serv.* **62**, 1–11 (2021)

Taş, E., Ayhan, Z.: Gıda-Plastik Ambalaj Sistemlerinde Geçirgenlik ve Geçirgenliği Etkileyen Faktörler. In: Turkey 9. Gıda Kongresi, Bolu (2006)

TB: Food hygiene practices and knives: bacterial contamination spreads in our kitchens!
<http://www.tb-haute-coutellerie.com/en/news/article/food-hygiene-practices-and-knives-bacterial-contamination-spreads-in-our-kitchens>. Accessed 30 July 2021

Uçar, A., Yılmaz, M.V., Çakıroğlu, F.P.: Food Safety-Problems and Solutions. Open Access Peer-Reviewed Chapter (2016)

Williams, H., Wikström, F., Wetter-Edman, K.,
Kristensson, P.: Decisions on recycling or waste: how
packaging functions affect the fate of used
packaging in selected Swedish Households.
Sustainability **10**(12), 4794 (2018)

wkmounts: Food Grade Plastic: What's Safe &
What's Not. <https://omicoplastics.com/blog/food-grade-plastic-whats-safe-whats-not/> (2019)

www.ateriet.com. <https://www.ateriet.com/food-in-tubes-a-very-swedish-way-to-package-food/>.
Accessed 30 July 2021

www.btsa.com.
<https://www.btsa.com/en/packaging-material-food/>
Types of packaging material used in food. Accessed
30 July 2021

www.chemicalsafetyfacts.org.
<https://www.chemicalsafetyfacts.org/types-plastic-food-packaging-safety-close-look/>. Accessed 30 July
2021

www.grandviewresearch.com.
<https://www.grandviewresearch.com/industry-analysis/tube-packaging-market>. Accessed 30 July
2021

www.marketresearchfuture.com.

<https://www.marketresearchfuture.com/reports/plastic-tube-packaging-market-5086>. Accessed 30 July 2021

www.marmetube.de.

<https://www.marmetube.de/english>. Accessed 30 July 2021

www.mordorintelligence.com.

<https://www.mordorintelligence.com/industry-reports/tube-packaging-market>. Accessed 30 July 2021

www.tetrapak.com.

<https://www.tetrapak.com/solutions/processing/applications/prepared-food/spreads>. Accessed 30 July 2021

Yaris A., Sezgin, A.: Food Packaging - Glass and Plastic. Researches on Science and Art in 21st Century (2017)

Yerlikaya, O., Karagözlü, C., Ender G., Akbulut, N.: Probiyotik Süt Ürünlerinde Ambalajlama, In: Turkey 10, Gıda Kongresi, Erzurum, Turkey (2008)

Young, M.: From Squeezable Mayo Pouches to Twistable Butter Dispensers.

<https://www.trendhunter.com/slideshow/spread-packaging>. Accessed 30 July 2021

Author information

Authors and Affiliations

**Faculty of Agro-Based Industry, Universiti
Malaysia Kelantan, Jeli Campus, Jeli, 17600, Jeli,
Kelantan, Malaysia**

Ikarastika Rahayu Abdul Wahab, Vanessa Carmel
Lopez, Norlaila Azua Roslan & Saranya Muthu

Corresponding author

Correspondence to [Ikarastika Rahayu Abdul Wahab](mailto:ikarastika@umk.edu.my).

Editor information

Editors and Affiliations

**Northern Cyprus Campus, Middle East Technical
University, via Mersin 10, Turkey**

Assist. Prof. Bahaeddin Alareeni

**College of Business of Finance, Ahlia University,
Manama, Bahrain**

Prof. Dr. Allam Hamdan

Ethics declarations

Conflict of Interest.

The authors declare no financial or commercial
conflict of interest.

Ethical Approval.

This study does not involve any human or animal testing.

Informed Consent.

Written informed consent was obtained from all study participants.

Appendix

Customers' Knowledge

Data on Customers' Knowledge on Packaging of Food Spreads.

Question	
1	Packaging is the main criteria that I consider when buying food products such as spreads
2	The current food spreads products in the market are packaged in glass or plastic jars
3	I think the type of packaging can influence the shelf-life and the quality of the food spreads
4	Plastic tubes can potentially replace jars in packaging of food spreads
5	I think current packaging of food spreads in the market provides high convenience to consumers
6	I think food spreads should be packaged in air-tight packaging
7	The packaging material used to package food spreads should be stable and not easily broken
8	The packaging material used to package food spreads should be able to be recycled
9	The packaging material of food spreads should be safe and do not cause harmful effect to consumers

Number and percentage of respondents based on their knowledge on food spread packaging.

Q	Yes		No		Uncertain	
1	111	73.03%	34	22.37%	7	4.61%
2	132	86.84%	7	4.61%	13	8.55%
3	119	78.29%	8	5.26%	25	16.45%
4	100	65.79%	22	14.47%	30	19.74%
5	107	70.39%	20	13.16%	25	16.45%
6	132	86.84%	7	4.61%	13	8.55%
7	143	94.08%	5	3.29%	3	1.97%
8	126	82.89%	10	6.58%	16	10.53%
9	147	96.71%	4	2.63%	1	0.66%

Data on Rating of Customers' Knowledge on Packaging of Food Spreads.

Question	
1	Packaging is not the main criteria that I consider when buying food products such as spreads
2	I think current packaging of food spreads in the market does not provide convenience to consumers
3	I prefer air-tight packaging for food spreads
4	I prefer packaging materials that are recyclable
5	I prefer packaging materials that are light-weight which easy to be used and handled
6	Food spreads should be packaged in a stable packaging where the material is not easily broken
7	The packaging materials used to package food spreads should be safe to be used and does not cause harmful effects to customers
8	I prefer packaging that are able to maintain the shelf-life and quality of the food spreads

Question	
9	I prefer packaging that do not take too much space during storage

Number and percentage of respondents based on their rating of knowledge on food spread packaging.

Q	Strongly disagree		Disagree		Uncertain		Agree		S
1	37	24.34%	46	30.26%	12	7.89%	27	17.76%	3
2	37	24.34%	38	25.00%	33	21.71%	19	12.50%	2
3	29	19.08%	8	5.26%	14	9.21%	30	19.74%	7
4	26	17.11%	10	6.58%	15	9.87%	30	19.74%	7
5	31	20.39%	8	5.26%	3	1.97%	31	20.39%	7
6	37	24.34%	4	2.63%	5	3.29%	24	15.79%	8
7	29	19.08%	6	3.95%	5	3.29%	27	17.76%	8
8	34	22.37%	3	1.97%	7	4.61%	25	16.45%	8
9	28	18.42%	6	3.95%	9	5.92%	36	23.68%	7

Customers' Practice

Data on Customers' Practice on Packaging of Food Spreads.

Questions	
1	I find it very important to use clean spreading materials such as spoon or spread knife to spread the food spreads
2	I always forget to tightly close the lid of the jar after using the food spreads
3	I make sure to dry my spreading materials before using them

Questions	
4	I do not bring my jars of food spreads during picnics because it is very inconvenient
5	I do not allow my children to use the food spreads by their own
6	I feel it is non-hygienic to dip our fingers in the food spreads
7	The transparent jars containing food spreads need to be stored in the area with minimal light exposure
8	It is troublesome to wash the food spread materials every time after using the food spreads
9	The lid of the jar of the food spreads need to be immediately closed after used

Number and percentage of respondents based on their practice on food spread packaging.

Q	Yes		No		Uncertain	
1	144	97.74%	5	3.29%	3	1.97%
2	61	40.13%	66	43.42%	25	16.45%
3	119	78.29%	15	9.87%	18	11.84%
4	73	48.03%	53	34.87%	26	17.11%
5	67	44.08%	42	27.63%	43	28.29%
6	134	88.16%	9	5.92%	9	5.92%
7	110	72.37%	16	10.53%	26	17.11%
8	104	68.42%	30	19.74%	18	11.84%
9	132	86.84%	10	6.58%	10	6.58%

Data on Rating of Customers' Practice on Packaging of Food Spreads.

Questions	
1	I use clean spreading materials during spreading of the food spreads

Questions	
2	I make sure to not have any direct physical contact with the food spreads
3	I do not have any storage problems for the food spreads
4	I do not consider the light exposure factors when storing the transparent jars containing the food spreads
5	I feel that it is not safe for children to handle the jars containing food spreads on their own
6	I feel it is very troublesome to wash the food spread materials every time after using them
7	I feel that it is inconvenient to use the jar of food spreads during any outdoor activities such as picnics
8	I always forget to close the lid of the food spread jar tightly after using it
9	I feel it is very important to immediately close the lids of the food spread jars after using it

Number and percentage of respondents based on their rating of practice on food spread packaging.

Q	Strongly disagree		Disagree		Uncertain		Agree		S
1	31	20.39%	5	3.29%	2	1.32%	25	16.45%	8
2	28	18.42%	7	4.61%	14	9.21%	37	24.34%	6
3	43	28.29%	11	7.24%	21	13.82%	47	30.92%	3
4	59	38.82%	41	26.97%	31	20.39%	18	11.84%	3
5	26	17.11%	24	15.79%	19	12.50%	40	26.32%	4
6	29	19.08%	29	19.08%	18	11.84%	27	17.76%	4
7	28	18.42%	35	23.03%	25	16.45%	23	15.13%	4
8	50	32.89%	37	24.34%	19	12.50%	19	12.50%	2
9	30	19.74%	7	4.61%	7	4.61%	24	15.79%	8

Customers' Attitude

Data on Customers' Attitude on Packaging of Food Spreads.

Questions	
1	I prefer packaging material that are light-weight
2	I prefer packaging material that are stable and not easily broken
3	I prefer packaging that are odourless which do not affect the smell of the product
4	I prefer packaging that do not cause alteration of the product's taste
5	I prefer packaging materials that are environmental friendly
6	I prefer packaging that are recyclable
7	I prefer packaging that are easy to be used
8	I prefer packaging that provides unique functions
9	I prefer packaging that provides convenience in terms of storage and use

Number and percentage of respondents based on their attitude on food spread packaging.

Q	Yes		No		Uncertain	
1	135	88.82%	4	2.63%	13	8.55%
2	145	95.39%	6	3.95%	1	0.66%
3	144	94.74%	4	2.63%	4	2.63%
4	146	96.05%	5	3.29%	1	0.66%
5	140	92.11%	4	2.63%	8	5.26%
6	132	86.84%	5	3.29%	15	9.87%
7	145	95.39%	5	3.29%	2	1.32%
8	129	84.87%	10	6.58%	13	8.55%

Q	Yes		No		Uncertain	
9	143	94.08%	6	3.95%	3	1.97%

Data on Rating of Customers' Attitude on Packaging of Food Spreads.

Questions	
1	I would prefer food spreads packaged in plastic tubes because they are more light weight compared to jars
2	I feel plastic tubes are less stable and break easily compared to jars
3	I feel plastic tubes are less flexible which makes it difficult to be stored compared to jars
4	I would prefer food spreads packaged in plastic tubes because the spreads can be directly spread on the bread surface without the use of spoons or spread knife
5	I would prefer food spreads packaged in plastic tubes because it is more hygienic as the food are less exposed to contaminants from the environment or the spreading materials
6	I would prefer food spreads packaged in plastic tubes because the packaging can provide a longer shelf-life of the product compared to jar
7	I would prefer the plastic tubes made from biodegradable plastics that are safe for the environment
8	I would prefer the plastic tubes that are made from natural-based materials
9	I would prefer the plastic tubes to have the opening that functions as a spread material instead of a circular opening

Number and percentage of respondents based on their rating of attitude on food spread packaging.

Q	Strongly disagree	Disagree	Uncertain	Agree	S
					a

Q	Strongly disagree		Disagree		Uncertain		Agree		S
1	20	13.16%	23	15.13%	42	27.63%	29	19.08%	3
2	38	25.00%	33	21.71%	47	30.92%	21	13.82%	1
3	51	33.55%	37	24.34%	37	24.34%	21	13.82%	6
4	19	12.50%	20	13.16%	27	17.76%	36	23.68%	5
5	21	13.82%	18	11.84%	23	15.13%	37	24.34%	5
6	21	13.82%	26	17.11%	33	21.71%	33	21.71%	3
7	23	15.13%	12	7.89%	21	13.82%	31	20.39%	6
8	22	14.47%	12	7.89%	26	17.11%	26	17.11%	6
9	24	15.79%	11	7.24%	22	14.47%	33	21.71%	6

Rights and permissions

[Reprints and Permissions](#)

Copyright information

© 2023 The Author(s), under exclusive license to Springer Nature Switzerland AG

About this paper

Cite this paper

Abdul Wahab, I.R., Lopez, V.C., Roslan, N.A., Muthu, S. (2023). Consumer Preferences on Packaging Materials of Food Spread Products. In: Alareeni, B., Hamdan, A. (eds) Impact of Artificial Intelligence, and the Fourth Industrial Revolution on Business Success. ICBT 2021. Lecture Notes in Networks and Systems, vol 485. Springer, Cham. https://doi.org/10.1007/978-3-031-08093-7_20

[.RIS](#) ↓ [.ENW](#) ↓ [.BIB](#) ↓

DOI

https://doi.org/10.1007/978-3-031-08093-7_20

Published	Publisher Name	Print ISBN
30 July 2022	Springer, Cham	978-3-031-08092-0

Online ISBN	eBook Packages
978-3-031-08093-7	Engineering
	Engineering (R0)

Not logged in - 103.101.245.248

Universiti Malaysia Kelantan (3000162422)

SPRINGER NATURE

© 2022 Springer Nature Switzerland AG. Part of [Springer Nature](#).