becc
behavior, energy & climate change

HNU
Hochschule Neu-Ulm
University of Applied Sciences

DO CONSUMERS WANT TO REDUCE PLASTIC PACKAGING?

Results of a field experiment

This virtual poster prepared for BECC 2021

Pia Drechsel
pia.drechsel@hnu.de

Abstracts

Packaging is ubiquitous when buying groceries. It fulfills important functions and protects the product. Plastic packaging is often used due to its versatility, material efficiency, durability and economic advantages (Heidbreder et al., 2019). While these advantages have led to a widespread use in recent decades, waste problems and environmental pollution must be considered as well.

Consumers can play an important role in the market penetration of environmentally friendly packaging (EFP) alternatives. Although many consumers have a positive environmental attitude, this does not automatically lead to sustainable purchasing behavior, because buying decisions are influenced by many different factors. While research on attitudes and behavioral intentions is relatively extensive, there is a lack of studies linking attitudes and intentions to actual environmentally conscious buying behavior (Ketelsen et al., 2020)

EFP often differs from conventional packaging in terms of performance, appearance and price. Therefore, a field experiment with various packaging solutions for snack tomatoes in combination with consumer surveys was carried out in four retail branches in Germany to contribute to this field of research.

Heidbreder, Lea; Bablok, Isabella; Drews, Stefan; Menzel, Claudia (2019): Tackling the plastic problem: A review on perceptions, behaviors, and interventions. In: Science of the Total Environment.

Ketelsen, Meike; Janssen, Meike; Hamm, Ulrich (2020): Consumers' response to environmentally-friendly food packaging - A systematic review. In: Journal of Cleaner Production 254.

Pictures: Own illustrations.

Conceptual framework

Product category:

<u>Snack tomatoes</u>

- normally packed in trays made of PET or comparable plastic
- Tomatoes are clearly visible
- Packaging ensures transport protection
- Bundling and convenience function

Point of Sale Study:

- real purchase situation, no influence on the purchase decision by laboratory character/researchers
- Provision of packaging alternatives to conventional PET trays
- Observation of buying behavior/ measurement of sales figures

Survey:

- Survey of consumers after the purchase
- Link actual purchasing behavior with environmental attitudes, norm and behavioral intentions
- The structure of the questionnaire was based on the theory of planned behavior and a study from Prakash & Pathak (2017)

Prakash, Gyan; Pathak, Pramod (2017): Intention to buy eco-friendly packaged products among young consumers of India: A study on developing nation. In: Journal of Cleaner Production 141 (10), S. 385–393.

Packaging provided

The following trays were part of the point of sale experiment:
In addition to the various types of packaging, the following information and icons on the various materials were made available to consumers. The packaging was labeled using the product and batch labels on the back of the respective tray and using shelf signs and labels.

PET

Made from fossil raw materials

recyclable

Price for 250g
Country of origin: Morocco

1,27 €

PLA

Made from renewable sources

biodegradable according to EN 13432 / residual waste

Price for 250g
Country of origin
Morocco

1,38 €

R-PET (recycled PET)

Made from up to 80% recycled PET bottles

recyclable

Price for 250g
Country of origin: Morocco

1,38 €

Cardboard

Made from renewable sources

recyclable

Price for 250g
Country of origin: Morocco

1,38 €

The product environmental footprint was created for all packaging offered with the kind support of the University of Stuttgart, Germany. However, this was not communicated to consumers.

Pictures: Own illustrations

Data Collection

- Period of six weeks (October to December 2020)
- Four supermarket branches in South Germany
- Consumers were offered snack tomatoes in the conventional PET packaging and for two weeks each, in one of the shown alternative solutions
- Alternative packaging solutions (R-PET, PLA and cardboard) were sold with a higher price of 11 cents, in accordance with higher manufacturing costs

Own illustration

Point of Sale Study

sales figures

Survey

In Store – After Purchase
Online questionnaire

Results – Point of Sale Study

After six weeks the experiment was completed and sales figures were evaluated. During the test period, a total of 1,470 packaging units of 250g Snack tomatoes were sold. Of these, 698 trays were sold with a conventional PET tray and 772 units with one of the more environmentally friendly declared packaging solution. This corresponds to a ratio of 47 to 53 and shows that consumers are willing to pay 11ct more for an environmentally friendly alternative.

The three alternatives were accepted almost equally well, what the following table shows:

Packaging Materials	**Price** (for 250g Snacktomatoes)	**Sales volume during the trial period**
PET	1,27 €	698 pc.
R-PET	1,38 €	264 pc.
PLA	1,38 €	262 pc.
Cardboard	1,38 €	246 pc.

Results – Survey

In addition to measuring sales figures, consumer surveys were carried out on site on 26 survey days using an online questionnaire. The consumers were addressed personally and only after a tomato packaging from the study design has been purchased. The survey was accessed using a packaging-specific QR code, which linked the survey results directly to the packaging purchased.

Consumers rated among other things a total grade for the packaging solutions offered according to the German school grade principle (1 very good - 6 unsatisfactory) and also stated what they were willing to pay for the respective tomato pack.

Packaging Materials	Overall rating of the packaging in the survey (1 very good - 6 unsatisfactory)	Willingness to pay
PET	4,3	1,66 €
R-PET	3,8	2,00 €
PLA	2,8	2,15 €
Cardboard	2,4	2,38 €

n = 84

Despite the lack of transparency, the favorite among the survey participants was Cardboard.

Own illustration

Conclusion

The results of this field study show that the majority of consumers are willing to make a sustainable contribution to avoiding plastic packaging by making an active purchase decision, even if this requires a higher price. However, there is often a lack of knowledge and there are usually no sustainable packaging alternatives available, since conventional plastic is often the first choice for retailers and manufacturers due to its stability, longevity and low price. The online survey also showed that the properties of the packaging (type of packaging, product visibility, whether packed / unpacked at all) and the price play a rather subordinate role in the selection of tomatoes. Taste, quality and product origin were named as the three most important decision-making criteria, when buying fruit and vegetables.