



## **UWL REPOSITORY**

**repository.uwl.ac.uk**

Perception and acceptance of insect-based products by GenZ and Millennials using a sensory tasting and quantitative questionnaire

Willike, Marie, Tsiami, Amalia ORCID logoORCID: <https://orcid.org/0000-0002-1122-4814> and Lara, Szymon Wojciech (2025) Perception and acceptance of insect-based products by GenZ and Millennials using a sensory tasting and quantitative questionnaire. In: Spain Gastronomy Conference - Reframing Gastronomy, 27-29 Mar 2025, Madrid, Spain. (Submitted)

**This is the Submitted Version of the final output.**

**UWL repository link:** <https://repository.uwl.ac.uk/id/eprint/14484/>

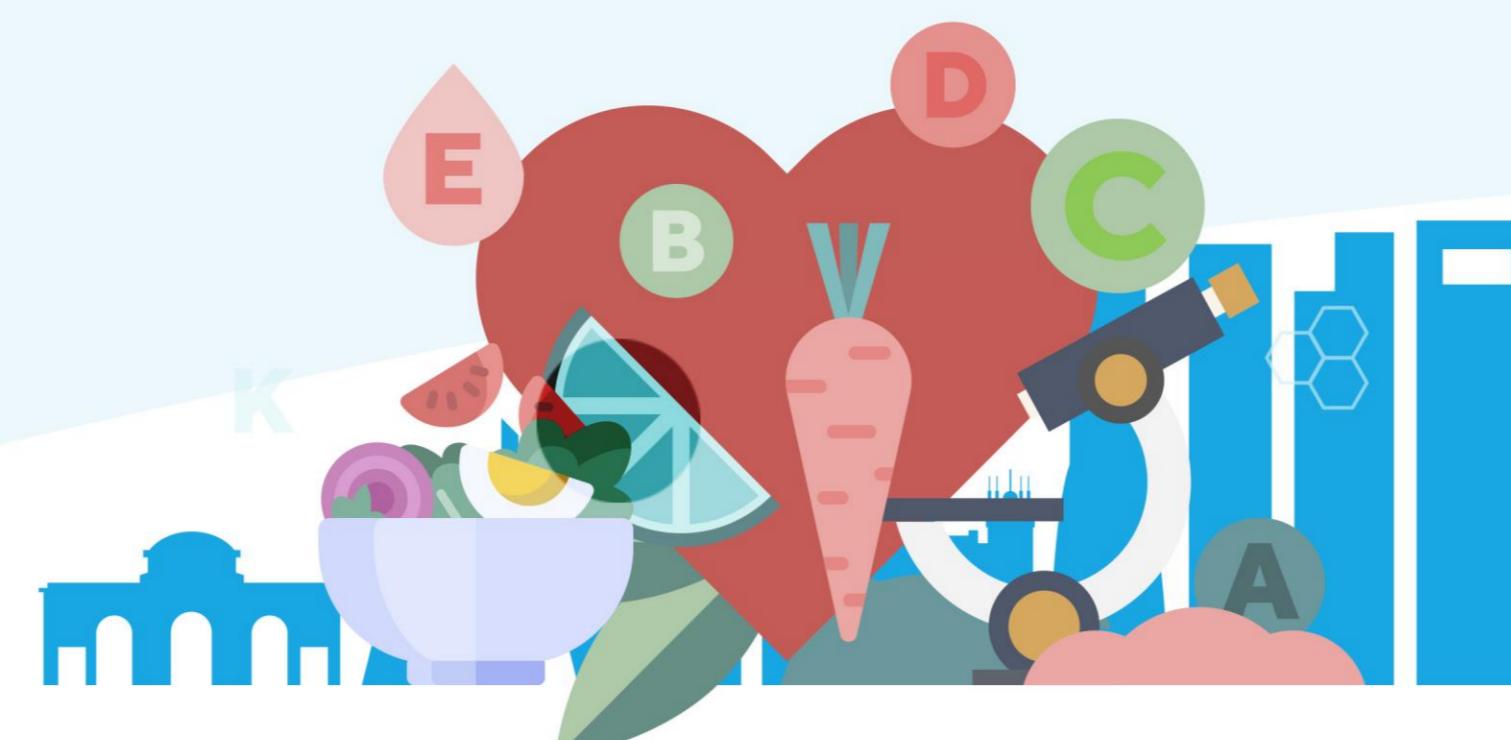
**Alternative formats:** If you require this document in an alternative format, please contact: [open.research@uwl.ac.uk](mailto:open.research@uwl.ac.uk)

**Copyright:** Creative Commons: Attribution 4.0

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy:** If you believe that this document breaches copyright, please contact us at [open.research@uwl.ac.uk](mailto:open.research@uwl.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.

**Rights Retention Statement:**



# “Perception and acceptance of insect-based products by GenZ and Millennials”

Authors: Marie Willeke, Amalia Tsiami, Szymon Lara (University of West London)

## Introduction

**Entomophagy** (consumption of insects) represents a sustainable and nutritious alternative to conventional meat. Insects are rich in protein (up to 75%), essential fats (up to 77%) and minerals (up to 8%). They require fewer resources and cause fewer greenhouse gas emissions.

Insects are a valuable option to improve food security and reduce our environmental footprint, especially considering increasing consumer demand for greener and healthier diets.

In the EU, 6 insect species are approved: migratory locust, lesser mealworm, yellow mealworm, house cricket, German cheese mite and flour mite.

## Key Findings

- Clear discrepancy between awareness and consumer behaviour.
- Products are more appealing when insects are not visible.
- Neophobia remains key barrier.
- Familiarity increased the acceptance.
- Insect-free variants were mostly preferred (except for granola and puffs).



## Methods

- Close-ended Questionnaire:** 118 participants to assess awareness, attitudes and willingness to consume insect-based products.
- Sensory Evaluation:** 59 participants rated the appearance, aroma, taste, sweetness and mouthfeel of 5 insect-based vs. 5 traditional products using a hedonic scale.
- Followed ISO 8586:2012 and ISO 8586:2014 standards.
- Participants aged 18-30 and predominantly from Europe.

Hedonic scale  
1 = Like a lot  
2 = Like a little  
3 = Neither like nor dislike  
4 = Dislike a little  
5 = Dislike a lot

## Analysis

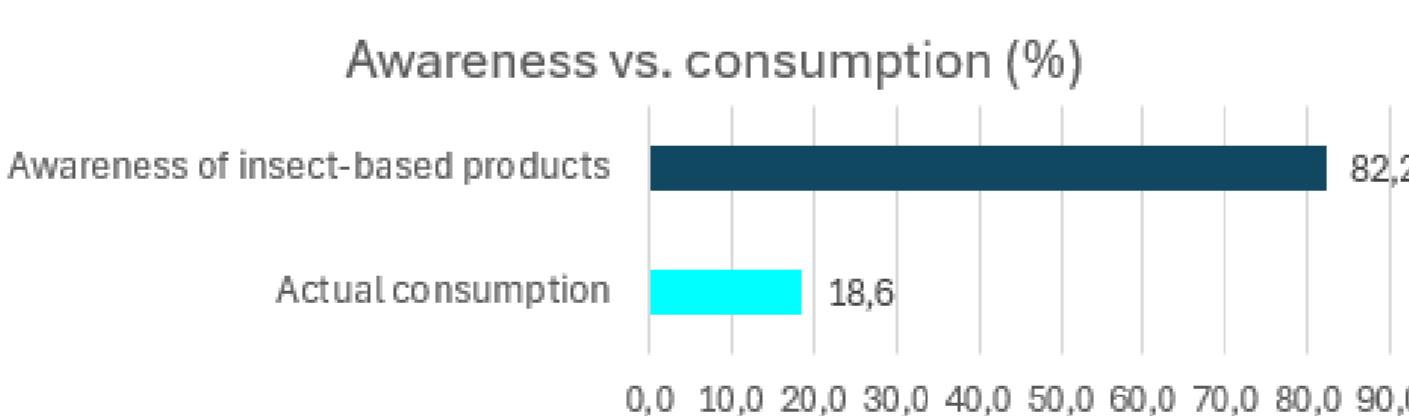
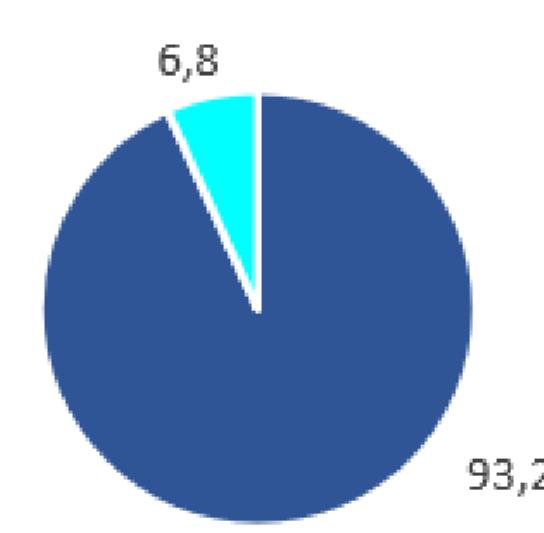
- Pearson correlation analysis** assessed relationships between food neophobia, willingness to try and perceptions of insect-based products.
- Sensory attributes were statistically analysed using **ANOVA** to determine significant differences between traditional and insect-based products.
- IBM SPSS software** was used.

## Results

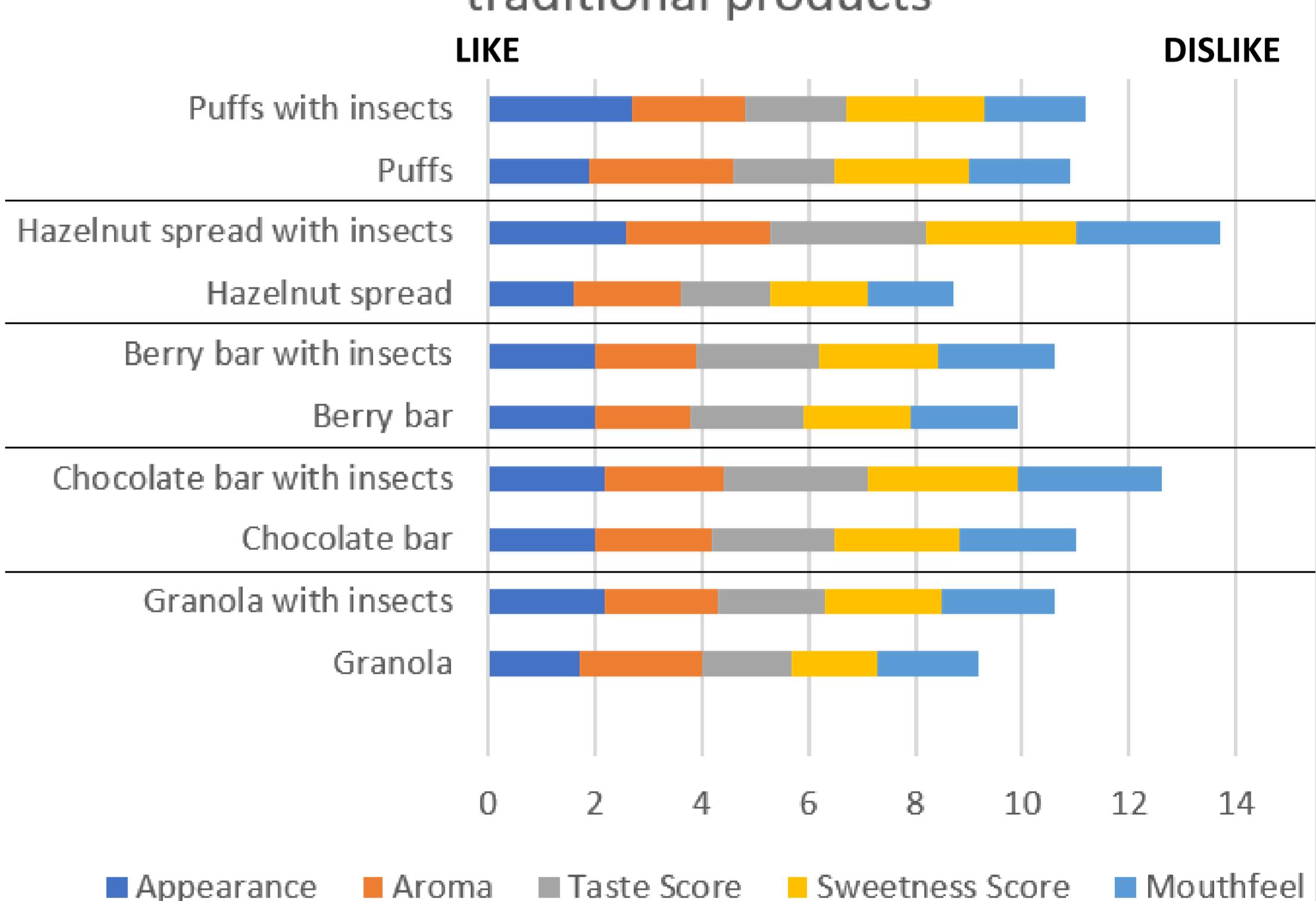
### Questionnaire:

- 82.2% of participants are aware of insect-based products.
- 86% recognise insects as nutritious (particularly rich in protein).
- 58% see consumption as environmentally friendly.
- Only 18.6% have tried insects.
- 93.2% find products more appealing if the natural appearance of the insects is hidden.
- People with higher neophobia scores are less willing to consume insect products ( $r = -0.208$ ) while previous consumption is positively correlated with future willingness to consume ( $r = 0.312$ ).

Preference for the preparation of insect-based products (%)



Sensory Evaluation: Insect-based vs. traditional products



### Sensory Evaluation:

- While the appearance of insect-based products such as granola and puffs were rated favourably, traditional alternatives performed better overall in other categories such as taste and texture.
- For hazelnut spreads, the insect-free product was significantly favoured, especially in the mouthfeel category ( $1.6 \pm 0.1$  compared to  $2.6 \pm 0.1$  for the insect variant).
- Familiarity plays a central role in acceptance, as familiar flavours and texture profiles were generally preferred by the participants.

## Reference

Willeke, M.; Tsiami, A.; Lara, S.W. (2025). *Tasting the Future: Sensory Evaluation and Perception of Insect-Based Products Among GenZ and Millennials*. Gastronomy, 3(2). <https://doi.org/10.3390/gastronomy3010002>

## Conclusion

The study highlights the **gap** between awareness and actual consumption of insect-based products. While many recognise the **nutritional and environmental benefits**, significant barriers such as **neophobia** and **unfamiliarity** limit widespread acceptance. Sensory evaluation shows that formulation improvements, including **hiding the visual presence** of insect parts, can increase attractiveness. In addition, **exposure and early consumption experience** play a critical role in increasing acceptance. Future efforts should focus on familiarising consumers with insect proteins through **targeted education, culinary innovation and the integration of insects into commonly consumed foods**. Gastronomic and political support is crucial for normalisation and greater market uptake.