

ALESSANDRA JACOMUZZI

THE ETHICS OF FOOD SUSTAINABILITY: INDIVIDUAL PREFERENCES AND COLLECTIVE RESPONSIBILITY IN THE FACE OF THE EDIBLE INSECTS CHALLENGE

1. Introduction
2. Entomophagy: A Reality Sanctioned by European Regulations
3. Insects: A Food Beneficial for Health and the Planet
4. Sustainability and Insect Consumption: An Ethical Necessity
5. Perception of Edible Insects in European Culture
6. Individual Preferences, Free Will, and Collective Responsibility
7. Conclusions

ABSTRACT: *THE ETHICS OF FOOD SUSTAINABILITY: INDIVIDUAL PREFERENCES AND COLLECTIVE RESPONSIBILITY IN THE FACE OF THE EDIBLE INSECTS CHALLENGE*

Entomophagy, or the consumption of insects, offers a sustainable solution to environmental and food security challenges. Insects provide high-quality proteins, healthy fats, and essential micronutrients, while requiring fewer resources and emitting less greenhouse gas than traditional livestock. However, cultural barriers, such as entomophobia, prevent their widespread acceptance in Western societies. Overcoming these obstacles requires educational programs, marketing strategies focused on nutritional benefits, and social engagement to reshape public perception and encourage a more sustainable diet.



1. Introduction

Entomophagy, the practice of consuming insects as a food source, has garnered increasing attention in recent years, particularly in the context of promoting sustainable diets. Amid political debates and television culinary challenges, these novel foods are generating unprecedented curiosity and discussions. Their introduction into daily diets, alongside rising environmental awareness and sustainability needs, is sparking a lively discourse, particularly in Western countries, across media outlets and political institutions.

Generally classified under the category of novel foods, insects are predominantly perceived as far removed from Western,

especially Italian, culinary traditions and they are associated with emotions such as disgust and fear¹. The perception of a novel food as something distant from a given culture is not new. In fact, if we adopt a broader definition of novel foods – that is, foods not traditionally consumed in a specific country – we can include items such as tomatoes and potatoes, whose historical perception is not entirely dissimilar to that of insects.

For instance, the tomato, native to the Americas, was introduced to Europe after 1492. It was brought to Spain in the 16th century and gradually spread to Italy. The first documented uses of tomatoes in Italy date back to the second half of the 16th century. However, initially regarded as an ornamental plant rather than food, it was met with suspicion. Some even thought it could be poisonous to humans, as it belongs to the Solanaceae family, which includes toxic plants. Regular culinary use only began in the 18th century, yet today, tomatoes are considered a fundamental ingredient in Italian cuisine². A similar narrative applies to another staple of our daily diets: the potato. Like tomatoes, potatoes arrived in Italy via Spain in the 16th century. Initially, they were considered livestock fodder, and some people believed they caused diseases or contributed to malnutrition. Potatoes also belong to the Solanaceae family, which includes toxic plants, furthering the belief that they were harmful³. In fact, certain parts of the potato, such as the leaves or sprouts, are indeed toxic due to solanine. The widespread acceptance of the potato as a viable food source began in the 18th century, largely due to the efforts of Antoine-Augustin Parmentier in France, who promoted potatoes as a solution to famine and malnutrition. Parmentier organized public demonstrations showcasing potato-based

¹ A.C. Jacomuzzi, L.E. Milani Marin, *Insects at the table: What consumers know*, in «Review of studies on sustainability», 1, 2020, pp. 195-208.

² D. Gentilcore, *Pomodoro! A History of the Tomato in Italy*, Columbia University Press, New York 2010.

³ R.N. Salaman, *The History and Social Influence of the Potato*, Cambridge University Press, Cambridge 1985.

dishes, even earning the support of King Louis XVI in his campaign.

Despite such efforts, many European rural communities refused to grow or consume potatoes, viewing them not only as poisonous but also culturally and religiously inappropriate. In some cases, they were considered unsuitable because they were not mentioned in the Bible. Over time, however, potatoes became widely accepted as a source of cheap, nutritious food. Their ability to thrive in harsh conditions made them particularly popular during famines. In Italy, although their initial spread was slower compared to other countries, potatoes eventually became integral to Italian cuisine, especially in the northern regions. Today, potatoes are a key ingredient in traditional dishes such as gnocchi⁴.

It should not be surprising, then, that insect-based novel foods today are the subject of numerous discussions, media debates, political discourse, and even fears. In the Western world, particularly in Europe and Italy, there is a widespread negative sentiment towards insects. They are associated with a sense of disgust, mainly because we are accustomed to driving them away as intruders in our daily lives. It is very difficult, given this experience, to reach an acceptance of insects as something not only positive but even good to ingest. Nor should we consider this an insurmountable obstacle to their potential integration into our daily diets. Despite scientific evidence highlighting the substantial benefits of introducing such foods into our diets – benefits that range from essential nutrients to global sustainability – public acceptance remains a challenge. In the following sections, I will explore how individual preferences often counterbalance these personal and collective advantages. This tension touches upon broader discussions of free will and collective responsibility, raising questions about whether our

⁴ L. Zuckerman, *The Potato: How the Humble Spud Rescued the Western World*, North Point Press, Berkeley 1999.

personal perceptions of fear or disgust should be set aside in favor of a collective good – a goal that we may not even live to see fully realized⁵. Furthermore, on these considerations, I will examine whether communication efforts aimed at integrating these foods should focus less on collective responsibility and more on the individual health and wellness benefits. Would emphasizing personal gains over collective ones lead to more effective messaging? If so, how does the potential consumer think? Are they entirely unaware of the negative consequences of their choice, or are they cognizant of them and behave like most individuals in the prisoner's dilemma?⁶

2. Entomophagy: A Reality Sanctioned by European Regulations

One of the factors that today, unlike in the 17th century, should facilitate the acceptance of a new food into our diets is the existence of regulations governing the safety assessment of all novel foods. The introduction of Regulation (EU) 2015/2283⁷ in 2018 was one of the key factors that fueled the debate on entomophagy. This regulation appointed the European Food Safety Authority (EFSA) as the sole authority responsible for evaluating the safety of all novel foods⁸. The existence of a single recognized authority tasked with certifying the safety of food products has led to greater uniformity in regulation across all European states. Specifically, EFSA established the Union List of Novel Foods, which is managed by the European Commission and

⁵ R. M. Dawes, *Social Dilemmas*, in «Annual Review of Psychology», XXI, 1, 1980, pp. 169-193.

⁶ A.M. Chamma, A. Rapoport, *Prisoner's Dilemma: A Study in Conflict and Cooperation*, University of Michigan Press, Ann Arbor 1965.

⁷ Regulation (EU) 2015/2283 of the European Parliament and of the Council of 25 November 2015 on novel foods, amending Regulation (EU) No 1169/2011 of the European Parliament and of the Council and repealing Regulation (EC) No 258/97 of the European Parliament and of the Council and Commission Regulation (EC) No 1852/2001 (Text with EEA relevance).

⁸ D. Turck, J. Castenmiller, et. Al., *Safety of dried yellow mealworm (*Tenebrio molitor* larva) as a novel food pursuant to Regulation (EU) 2015/2283*, in «EFSA journal. European Food Safety Authority», XIX, 1, 2021.

includes all new foods that have received marketing authorization within the EU. Alongside the authorization, conditions of use, labeling obligations, and post-market monitoring protocols are specified. Access to this list is essential for food operators, who are thereby required to adhere to the same rules.

Moreover, the so-called simplified procedure for equivalent products, which allowed certain novel foods to be authorized through a faster process if they could demonstrate equivalence to an existing product, has been eliminated. Regardless of whether a food is equivalent to an existing one, all novel foods must now follow a standardized process to ensure their safety. Finally, to guarantee optimal safety, post-market monitoring has been introduced for novel foods that have been authorized. This allows for the monitoring of any potential effects once the product has entered the market. It is clear, therefore, that from a food safety perspective, once a food is included in the European Commission's list, it is subject to a high level of control.

In conjunction with the approval of Regulation (EU) 2015/2283, the European Commission began evaluating the safety of insects in 2018. The first approval in Europe was granted in 2021, with the inclusion of *Tenebrio molitor* (yellow mealworm) in the European Commission's Novel Food List, officially making it the first insect to be introduced into the European diet⁹. Subsequently, *Locusta migratoria* (migratory locust) and *Acheta domesticus* (house cricket) were also approved between 2021 and 2022. Today, these insects can be marketed in various forms – dried, frozen, or powdered – and they can be used as ingredients in a variety of food products. Today, therefore, the debate on the possibility of incorporating these foods into our diet is no longer merely theoretical but involves real possibilities.

⁹ *Ibid.*

3. *Insects: A Food Beneficial for Health and the Planet*

While the EFSA has confirmed the safety of insects and regulated their introduction as food at the European level, scientific research has simultaneously highlighted that insects represent an exceptionally efficient protein source, both in terms of the natural resources required for farming and their environmental impact.

Insects, indeed, provide high-quality protein. Some insect species contain between 60% and 70% protein content. For instance, the house cricket (*Acheta domesticus*), one of the first insects to be included in the European Commission's Novel Food List, contains protein in quantities comparable to traditional protein sources such as meat and fish¹⁰. Moreover, the presence of essential amino acids in insects makes them a valid alternative to these traditional protein sources¹¹. Insects are also rich in healthy fats. For example, the yellow mealworm (*Tenebrio molitor*), also included in the Novel Food List of the European Commission, provides essential fatty acids such as linoleic acid and oleic acid, which are beneficial for cardiovascular health¹². Furthermore, insects are a great source of essential micronutrients such as iron, zinc, calcium, magnesium, and B vitamins, making them a highly nutritious food. Recent studies on insect nutrients have also revealed that chitin, a polysaccharide found in the exoskeleton of insects, has beneficial effects on gut flora. From an environmental perspective, insect farming presents multiple advantages compared to traditional livestock farming.

¹⁰ A. Orkusz, L. Dymińska, K. Banaś, & J. Harasym, *Chemical and Nutritional Fat Profile of Acheta domesticus, Gryllus bimaculatus, Tenebrio molitor, and Rhynchophorus ferrugineus*. *Foods*, in «Food», XIII, 32, 2024, pp. 1-11.

¹¹ D. Turck, J. Castenmiller, J. S. De Henauw, K.I. Hirsch-Ernst, J. Kearney, A. Maciuk, I. Mangelsdorf, H.J. McArdle, A. Naska, C. Pelaez, K. Pentieva, A. Siani, F. Thies, S. Tsabouri, M. Vinceti, F. Cubadda, T. Frenzel, M. Heinonen, R. Marchelli, H.K. Knutsen, *op. cit.*

¹² T. Kawabata, N. Ohno, T. Yadomae. *Effect of chitin, chitosan, and their derivatives on the activation of intestinal immune system in the gut*, in «Biological and Pharmaceutical Bulletin», XVIII, 7, 1995, pp. 1002-1004.

Insects convert feed into biomass much more efficiently than cattle or pigs. For example, to produce 1 kg of body mass, crickets require only 1.7 kg of feed, whereas cattle need up to 8 kg¹³. Additionally, insects emit less carbon dioxide, methane, and nitrous oxide compared to traditional livestock. Insect farming also requires significantly less water and can be carried out in smaller spaces. A 2017 study estimated that insect farming uses about 90% less land compared to beef production¹⁴. Another important aspect is the rapid life cycle of many insect species and their efficient reproductive capabilities. This reduction in environmental resource usage positions insects as one of the optimal solutions for addressing food security issues and climate change.

When discussing global food security, it is essential to note that the FAO (Food and Agriculture Organization of the United Nations) has highlighted how the increasing demand for food could lead to a significant food crisis in the near future if more sustainable agricultural systems and innovative foods are not adopted¹⁵.

However, in many Western cultures, entomophobia – the fear or disgust towards insects – remains a significant barrier to their acceptance as food. This presents an ethical dilemma, which can no longer be ignored, revolving around the balance between the need to adopt sustainable dietary practices and the respect for individual preferences.

4. Sustainability and Insect Consumption: an Ethical Necessity

It has long been known that meat production, especially from cattle, significantly contributes to climate change. The primary

¹³ A. van Huis, *Potential of Insects as Food and Feed in Assuring Food Security*, in «Annual Review of Entomology», LVIII, 1, 2013, pp. 563-583.

¹⁴ I.J.M. de Boer, D.G.B. Onincx, *Environmental impact of the production of mealworms as a protein source for humans - A life cycle assessment*, in «PLOS ONE», VII, 12, 2012, pp. 1-5.

¹⁵ FAO, *The State of the World's Land and Water Resources for Food and Agriculture - Systems at Breaking Point*, in «Food and Agriculture Organization of the United Nations», 2022.

reasons are related to the vast amounts of water and land required for livestock farming¹⁶. This leads to deforestation, as new land is continuously cleared for both livestock grazing and the cultivation of animal feed. Moreover, ruminant animals, such as sheep and cattle, produce methane, a greenhouse gas with a warming effect 25 times more potent than carbon dioxide¹⁷. Additionally, meat production contributes to the emission of CO₂ and nitrous oxide through the combustion of fossil fuels used in transportation, processing, and feed production¹⁸.

It is also important to note that cattle and pigs have a low feed conversion rate. To produce 1 kg of meat, up to 8 kg of feed may be required¹⁹. All these factors stand in stark contrast to the efficiency of insects, as summarized in the previous paragraphs.

In conclusion, comparing the hypothetical consumption of insects with the current consumption of traditional meat, the advantages of insects, both from a nutritional and environmental standpoint, are undeniable. Insects provide high-quality complete proteins, rich in essential amino acids, healthy fats such as polyunsaturated fatty acids, and crucial micronutrients like iron, zinc, and B vitamins. Environmentally, insect farming requires fewer resources, such as water and land, and produces significantly fewer greenhouse gases compared to intensive livestock farming. Furthermore, insects exhibit a higher efficiency in converting feed into biomass, reducing agricultural waste. Their rapid reproductive cycle and ability to be farmed in small spaces further enhance their sustainability.

¹⁶ A.Y. Hoekstra, *The Water Footprint of Modern Agriculture: Water Use and Sustainability in the Production of Beef*, in «Water International», XXXVII, 4, 2012, pp. 517-534.

¹⁷ H. Steinfeld, P. Gerber, T. Wassenaar, V. Castel, M. Rosales, C. de Haan, *Livestock's Long Shadow: Environmental Issues and Options*, in «Food and Agriculture Organization of the United Nations», 2006. [<http://www.fao.org/documents/card/en/c/9655af93-7f88-58fc-84e8-d70a9a4d8bec>].

¹⁸ *Ibid.*

¹⁹ V. Smil, *Should We Eat Meat? Evolution and Consequences of Modern Carnivory*. Wiley-Blackwell, Hoboken 2013.

This alternative food source thus emerges as a promising solution to address future global food security challenges and the environmental crisis, without compromising the nutritional quality necessary for human well-being.

From a purely rational perspective, there should be no doubts about introducing insects into our daily diet. Yet, the reality is more complex. Traditionally, in Western culture, insects are associated with something far removed from food. Most of the time when we encounter an insect, we tend to avoid it or remove it, and if we were to find one on our dinner table, we would instinctively feel the need to get rid of it. This negative relationship with insects, commonly encountered and not well received, has created a strong barrier against an emotion of pleasure that should accompany eating²⁰.

5. Perception of Edible Insects in European Culture

Despite their undeniable nutritional and environmental benefits, the acceptance of insects as food remains a challenge in many Western societies, where food is closely tied to cultural identity. Particularly, the disgust associated with the sensory perception of insects and concerns over food safety continue to hinder their incorporation into everyday diets. One of the areas where the emotional and cultural barrier to edible insects is most prominent is Europe. The primary and most significant obstacle to accepting insects as food stems from culture. In Europe, gastronomy is a defining element of national identity. The deep-rooted connection to traditional cuisine makes it difficult not only to taste novel foods but also to integrate them into the diet. This is not to say that achieving this goal is impossible,

²⁰ L.E. Milani Marin, A.C. Jacomuzzi, *Insects as food: Knowledge, desire and media credibility. Ideas for a communication*, in «Rivista di studi sulla sostenibilità», 2, 2021, pp. 385-396.

but it will undoubtedly take time²¹. However, it is important to highlight that in some Western cultures, such as in the United States and Canada, a different and more open approach to experimenting with novel foods can be observed. In the United States, the edible insect industry has started to gain traction thanks to innovative start-ups and marketing campaigns that emphasize sustainability and the high nutritional value of insects. Similarly, in Canada, the government has supported research on sustainable food and has encouraged the production of alternative proteins, including those derived from insects.

The second obstacle is not only cultural tradition but also sensory perception and the resulting emotional response. Several studies have shown that insects evoke feelings of disgust and reluctance. This perception is often tied to fears about food safety, as these creatures are often associated with unsanitary and potentially infectious environments. However, this is not the sole reason humans experience disgust. There is also a total unfamiliarity with these foods, and the texture and sensory perceptions of those who have never consumed insects are far removed from the traditional foods we are accustomed to²².

This repulsion is often linked to the perception that insects may pose a food safety risk, possibly coming from unsanitary environments and potentially being vectors of pathogens. These perceptions are influenced by concerns about food hygiene and safety, as well as the lack of familiarity with insects as a safe and nutritious food source. Furthermore, the consistency and taste of insect-based products have been shown to play a significant role in the perception and acceptance of consumers, with some

²¹ A. Coelho, R. Bucea-Manea-Tonis, O. Martins, V. Simion, *Sensory perception nudge: Insect-based food consumer behavior*, in «Sustainability», XIV, 18, 2022, pp. 11541-11559.

²² D. Menozzi, C. Mora, G. Sogari, *Sensory-liking expectations and perceptions of processed and unprocessed insect products*, in «International Journal on Food System Dynamics», XI, 4, 2018, pp. 314-320.

gender differences and varying sensory perceptions observed during conducted tests²³. However, other studies have confirmed that while disgust is the predominant emotion associated with insects as food, it may diminish over time. A greater tolerance toward these novel foods can develop, especially when they become socially and widely accepted. This opens the door to the possibility of awareness campaigns that can highlight the sustainability of such a choice²⁴.

But in which direction should this awareness go? Various studies have demonstrated that despite the growing awareness of sustainability, immediate gratification and sensory pleasure tend to dominate when it comes to food choices²⁵. Several studies have shown that even when consumers express positive attitudes towards sustainable consumption, these attitudes do not always translate into consistent purchasing decisions²⁶. Additionally, studies exploring sustainable consumption patterns have revealed that the hedonistic aspects of eating, such as taste and pleasure, often outweigh considerations of environmental impact. This is especially true in contexts where sustainable options are perceived as less enjoyable or familiar. This tension between immediate pleasure and long-term environmental goals highlights the challenge of promoting sustainable diets. Hence, the need arises to employ strategies such as behavioral incentives or

²³ C. Hartmann, M. Siegrist, *Insects as food: Perception and acceptance – Findings from current research*, in «Food Quality and Preference», LXII, 2017, pp. 44-47.

²⁴ M. Amato, K.G. Grunert, F. La Barbera, F. Verneau, *Understanding Westerners' disgust for the eating of insects: The role of food neophobia and implicit associations*, in «Food Quality and Preference», LXIV, 2018, pp. 120-125.

²⁵ R. Ardoin, W. Prinyawiwatkul, *Consumer perceptions of insect consumption: A review of western research since 2015*, in «International Journal of Food Science & Technology», LVI, 3, 2021, pp. 1089-1104.

²⁶ I. Vermeir, W. Verbeke, *Sustainable Food Consumption: Exploring the Consumer "Attitude-Behavioral Intention" Gap*, in «Journal of Agricultural and Environmental Ethics», XIX, 2, 2006, pp. 169-194.

nudges to guide consumer habits²⁷. But can the use of these strategies alone suffice in helping us reach the goal?

6. Individual Preferences, Free Will, and Collective Responsibility

One of the primary obstacles to the adoption of entomophagy is entomophobia. The fear or aversion to consuming insects as food can be viewed as a matter of personal choice and individual autonomy. Every person has the right to select their food based on personal tastes, beliefs, or aversions. Forcing dietary changes may infringe on these rights, raising ethical questions about respecting individual preferences.

The tension between free will and collective sustainability raises a central ethical question: to what extent is it ethically acceptable to promote dietary changes for the common good if it conflicts with personal preferences? Social contract theories and collective responsibility suggest that, in an interconnected society, individual rights must be balanced with responsibilities toward the community and the environment. Therefore, while the emotional response of disgust toward insects is valid, it is equally valid to ask whether individual preferences should yield in favor of sustainability and the future welfare of society.

The principle of collective responsibility implies that individual actions have societal repercussions. Climate change and the global food crisis require responses not only at the political level but also at the individual behavioral level. In this context, food consumption is no longer just a matter of taste or preference but assumes a broader ethical dimension. Food choices, especially in the West, where resources are abundant, can influence the planet's future and its populations.

²⁷ A.C. Jacomuzzi, P. Legrenzi, *Nudge, il catalogo è questo*, in «Giornale italiano di psicologia», 2, 2020, pp. 455-459.

Certain ethical theories, such as utilitarianism, suggest promoting the choice that benefits the greatest number of people. In the context of food, this could mean encouraging people to overcome their disgust towards insects in favor of adopting a more sustainable diet. This necessitates a reflection on how to balance respect for individual freedom with the need for responsible actions that mitigate environmental damage.

However, pressure to change eating habits could be seen as an infringement on personal liberty. Individuals should retain the right to choose whether or not they want to eat insects, even if this has negative environmental consequences. The idea that dietary changes could be imposed through social norms or policies raises several questions. To what extent is it right for governmental institutions or society at large to attempt to influence or manipulate individual food choices?

What this paper proposes is that a balanced approach could be achieved through education from an early age. Promoting a better understanding of the environmental and nutritional benefits of insects through awareness campaigns and education, even within schools, could lead to a gradual change in public perceptions. From the perspective of inclusive education²⁸, we are working towards societal changes that affect the entire future²⁹. In this context, there is also the possibility of fostering food education that considers not only the health of the individual but also the health of the planet and the future of the global community. Education allows for the maintenance of free will while

²⁸ A.C. Jacomuzzi, L. E. Milani Marin, *The body at the forefront, again? Distance learning drawbacks and the inclusion paradox in schools*, in «Frontiers in Education», VIII, 2023, pp. 1-8.

²⁹ A.C. Jacomuzzi, L.E. Milani Marin, *Interactions and social identity of support teachers: An ethnographic study of marginalization in the inclusive school*, in «Frontiers in Education», VII, 2022, pp. 1-12.

simultaneously raising awareness of one's moral responsibility toward the planet.

Studies in neuromarketing have shown that people can modify their attitudes towards initially repulsive foods if they are presented in ways that reduce negative emotional reactions. However, education is crucial before marketing can take effect. The use of marketing practices that do not focus on the disgust of insects but highlight their benefits and sustainability could help bridge the gap between individual preference and collective responsibility.

7. Conclusions

The introduction of insects as a food source offers a concrete solution to the challenges posed by environmental sustainability and the growing global demand for food. However, as highlighted throughout this study, the widespread adoption of entomophagy faces significant resistance, particularly in Western contexts, due to cultural, emotional, and sensory factors. Despite the numerous nutritional and environmental advantages of consuming insects, psychological barriers such as entomophobia and disgust remain major obstacles to their large-scale adoption.

To overcome these barriers, a multi-dimensional strategy is needed, one that goes beyond merely communicating scientific benefits. As Daniel Kahneman's theory on the two systems of thought suggests, food choices are often guided by System 1, the fast and emotional thinking process, which reacts immediately with disgust at the idea of eating insects³⁰. Therefore, the challenge is to leverage System 2, the slower, more deliberate thinking process that involves reflection and consideration. Through targeted education and well-structured communication, we can

³⁰ D. Kahneman, *Thinking, Fast and Slow*, Penguin Books, Londra 2011.

stimulate a more rational approach, focusing on the long-term benefits of entomophagy.

I enlist in the following some practical solutions to overcome cultural barriers:

1. Food education in schools. One of the most effective strategies for promoting cultural change is the introduction of specific educational programs in schools. Educating young people about the nutritional and environmental benefits of entomophagy, through practical activities and scientific information, can help integrate novel foods into future food cultures. This strategy allows children to become familiar with the idea and develop a more open and rational attitude towards insects as food.

2. Sensory marketing and product presentation. Disgust can be mitigated through sensory marketing that emphasizes the benefits of insects without focusing on their traditionally off-putting visual appearance. For example, promoting food products that incorporate insect powder or processed ingredients in familiar dishes such as protein bars or pasta can reduce the initial emotional impact linked to their appearance. In this way, insects become a familiar and less alien ingredient in daily diets. Moreover, it is possible to work on packaging to create a favorable framing for purchase. In this regard, some Italian companies have already taken steps. Fucibo, for example, has chosen colorful packaging that does not in any way evoke the presence of insects. This way, at a visual level, the first impact of the packaging does not trigger associations with emotions like disgust.

3. Engagement of the media and changing the narrative. Media plays a crucial role in shaping public perceptions. Television programs, documentaries, and articles can be used to normalize insect consumption by shifting the focus away from disgust and towards the health and environmental benefits. Socially shared

experiences, such as public tastings or culinary challenges, can encourage a positive shift in the narrative.

4. Leveraging social dynamics and information sharing. The theory of "shareability," as suggested by recent studies³¹, highlights the importance of social dynamics and content sharing in influencing consumer behavior. Promoting the sharing of positive experiences related to insect consumption through digital platforms could accelerate social acceptance and reduce the familiarity bias, which favors traditional foods over novel ones.

5. Nudge strategies. The use of "nudges" or behavioral incentives can facilitate changes in dietary habits without forcing individual choices. For example, offering insect-based food options on restaurant menus alongside traditional dishes, or encouraging the choice of sustainable foods through discounts or promotions, can encourage gradual and voluntary exposure. From this perspective, the use of artificial intelligence to create personalized nudge experiences can be useful. Recent studies have shown that personalized nudges based on machine learning models can influence healthier food choices³².

Ultimately, the shift towards more sustainable eating requires a collective effort, balancing respect for individual preferences with collective responsibility towards the planet. To achieve this goal, it is necessary to rethink how we approach food and our dietary choices, leveraging more reflective and conscious thinking that takes into account the long-term impacts of our actions. By changing how we think and perceive, entomophagy can become not

³¹ B. Alioto, N. Bruno, G. Guerra, A.C. Jacomuzzi, *Shareability: A Novel Perspective on Human-Media Interaction*, in «Frontiers in Computer Science», V, 2023, pp. 1-12.

³² C. Dunn, P. Mohr, C. J. Wilson, *Behavioral nudges for encouraging healthier food choices in real-life settings: A systematic review and meta-analysis of randomized controlled trials*, in «International Journal of Behavioral Nutrition and Physical Activity», XVI, 1, 2019, pp. 1-14.

only a rational and sustainable dietary choice but also one that is culturally accepted and integrated into our daily lives.

ALESSANDRA JACMUZZI è Ricercatrice a Tempo indeterminato in Psicologia generale presso l'Università di Venezia

alessandra.jacomuzzi@unive.it