

## **Defining Sustainable Food for Consumers**

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### **Abstract**

Consumers are increasingly interested in sustainable food (Forbes et al., 2009) due to growing concerns for environmental matters among other issues. Currently, there are many varying definitions for the term “sustainable food”, however, consumers often lack understanding of the term. A systematic literature review was conducted to investigate what consumers understand sustainable food to be. It is evident from the literature that consumers lack understanding of the term and frequently associate sustainable food to be plant-based food, organic food and local food. Additionally, consumers associate sustainable food with being good for the environment, thus neglecting economic and social aspects. The implications of this study involve improving consumer knowledge through policy approaches which include implementing public information campaigns and labelling (Garnett et al., 2015). This study highlights the need for the literature to categorise the research accurately based on all three pillars of sustainable food.

*Keywords: Sustainable, Food, Understanding*

*Track: Ethics & Sustainability*

## 1. Introduction

Adopting sustainable food systems regarding food production and consumption practices is essential due to a multitude of reasons. Firstly, the current food system contributes heavily to greenhouse gas (GHG) emissions, thus it is one of the main contributors to climate change. Additionally, current food consumption contributes to excess waste along with soil and water pollution, thus negatively impacting on the conservation of natural ecosystems (Tobler et al., 2011; Wang and Gao, 2017). Furthermore, it is evident that a transition to a sustainable food system is necessary to avoid contributing to the loss of biodiversity and climate change.

Sustainable food can be defined as “products that positively contribute to one or a combination of the economic, environmental and social aspects of sustainability” (Reheul et al., 2001). Whereas the European Commission (2019) defines sustainable food as ensuring the “security of the supply of food, health, safety, affordability, quality, a strong food industry in terms of jobs and growth and, at the same time, environmental sustainability, in terms of issues such as climate change, biodiversity, water and soil quality”. Whilst there are several definitions surrounding sustainable food, it can be agreed that they all encompass the underlying dimensions of sustainability. Namely, that of the economic, social and environmental pillars of sustainable food.

Studies show that consumers are becoming more interested in sustainable food (Forbes et al., 2009). Whilst consumers possess this interest, it has been found that consumers are unsure of how to define or identify sustainable food (Grunert et al., 2014). There is a multitude of well-defined definitions for the term “sustainable food”, however, consumers do not possess adequate knowledge of what these terms mean. Considering that there are often different elements introduced in various definitions by the literature and authorities alike such as the European Commission and Food and Agriculture Organization (FAO), it could be suggested that consumers cannot decipher what each element of sustainable food encompasses. Therefore, an understanding of what sustainable food entails is open to a wide variety of interpretations by consumers which are influenced by several factors such as values along with economic or environmental situations (Grunert et al. 2014).

Currently, there are several foods offered on the market that are marketed as more sustainable than others. This is due to specific attributes connected with these products such as being more environmentally friendly or more ethical (Sidali et al., 2016). Typically, these foods are certified and labelled as sustainable to enable consumers to identify them, such as in the case with organic food. However, whilst these labels may signify that these foods are more sustainable, it may only incorporate one aspect of sustainability such as being more environmentally friendly. Thus, not being classified as truly sustainable regarding all three pillars of sustainability including environmental, economic, and social.

So far, very few studies have attempted to address consumers’ understanding of sustainable food. Therefore, this paper aims to investigate what consumers understand sustainable food to be. It has been highlighted within the literature that consumers’ knowledge of sustainable food has a significant impact on their attitudes and behaviours in purchasing said food (Popovic et al., 2019). Furthermore, the literature needs to gain a better understanding of what consumers believe to be sustainable food to assess their buying behaviour (Wang and Gao 2017). By identifying this, producers will become more motivated to adopt sustainable production methods (Gutierrez and Thornton, 2014), as consumer perceptions have a significant impact on forming their preferences for sustainable food. It is suggested that research aimed at investigating what consumers associate with sustainability, and what purchase decisions consumers consider sustainable, can provide a valuable contribution to promoting sustainable food consumption.

The paper is structured as follows; the methodology outlines the research methods used. Following this, the findings are presented followed by the implications of this study for theory and practice.

## 2. Methodology

Systematic Literature Reviews (SLR) use specific methods which aim to synthesise and analyse a body of literature. This method is based on the use of a keywords search of the literature in selected databases. This study adopted the SLR process as it offers a more objective and transparent alternative to the traditional narrative review method (Dixon-Woods et al., 2006). Furthermore, a SLR approach was adopted to attain a holistic view of how the literature discusses the topic of what consumers understand sustainable food to be. Moreover, this study implemented the three-stage SLR process as set out by Jesson et al., (2011), including.

- Defining the research question and designing the search strategy
- Applying inclusion, exclusion criteria and quality assessment
- Synthesising the results

The first stage of the SLR is to define the research question. The primary aim of this paper is to answer the research question, “*What do consumers understand sustainable food to be?*” Having defined the research question, the next step involved identifying keywords which could subsequently be used to perform a search through the body of literature. The following keywords were identified: Consumer, Perception, Understanding, Food, Sustainable, Conventional, Local and Organic.

Boolean searching was applied to narrow the search and specify exactly what was required, thus excluding any irrelevant articles. The following search strings were used:

- (consumer) AND ("sustainable food") AND (definition)
- (consumer) AND ("sustainable food") AND (definition) AND (organic)
- (consumer) AND ("sustainable food") AND (definition) AND (local)
- (consumer) AND ("sustainable food") AND (definition) AND (conventional)
- (consumer) AND ("sustainable food") AND (perception)
- (consumer) AND ("sustainable food") AND (perception) AND (organic)
- (consumer) AND ("sustainable food") AND (perception) AND (local)
- (consumer) AND ("sustainable food") AND (perception) AND (conventional)
- (consumer) AND ("sustainable food") AND (understanding)
- (consumer) AND ("sustainable food") AND (understanding) AND (organic)
- (consumer) AND ("sustainable food") AND (understanding) AND (local)
- (consumer) AND ("sustainable food") AND (understanding) AND (conventional)

Furthermore, the Boolean search also allowed for truncation. This is a way of capturing all relevant material by searching words and phrases which use the same root.

Having identified the key terms and the relevant search strings, the next step was to identify appropriate research databases where relevant articles could be extracted. As such, the search was limited to peer-reviewed journals in the databases, Web of Science, Science Direct, Emerald Insight, Sage Journals and Taylor and Francis Online. These databases were selected as they contain publications relevant to sustainability, food studies and behavioural studies.

The next step in the SLR process was to apply inclusion criteria. Initially, only peer-reviewed results were included in the search. Thus, ensuring that the articles collected have been

subjected to approval by those knowledgeable in the chosen subject (Jesson et al., 2011). Secondly, all results were limited to a time interval of 2010-2020, this time frame was chosen as sustainable food consumption policies are constantly evolving, thus it was vital to get the most up-to-date information on consumers' understanding of sustainable food. Lastly, articles were further refined to locate articles in the field of "food, sustainability, environmental and behavioural studies" to provide a focus on the literature as currently the area of sustainable food is fragmented. By applying these criteria, the number of articles was reduced from 14257 to 9015.

These results were then further refined by limiting the search of key terms to the journal abstracts only. This ensured that sustainable food and consumers understanding were the focus of each article. Additionally, it must be noted that the journal articles reviewed were in English. This further reduced the results from 9015 to 355. Subsequently, after the removal of duplicate articles, the final count amounted to 236 articles.

The last step in the process was to synthesis the findings into themes. The 236 articles were imported into NVivo to analyse the content. Content themes were created by manually coding significant aspects of the journal articles as well as using text findings to identify certain words. The first step of this process was screening the articles based on the title and abstract in regard how each article referenced sustainable food. Following this, the content of each article was coded depending on how the article discussed consumers' understanding of sustainable food. For example, articles were grouped into themes relating to the understanding of sustainable food, such as organic food and local food being perceived as sustainable food. Lastly, further analysis was conducted using word search and text search queries on all articles.

This process formed the basis for identifying relevant information with respect to the stated research question, enabling the author to produce findings relating to consumers' understanding of sustainable food.

### **3. Findings and Discussion**

#### **3.1 Environmental Pillar**

From the literature it was discovered that consumers frequently associate sustainable food with being "good for the environment" which is linked to foods displaying green labels and/or eco-labels (Yanarella et al., 2009). Indeed, many studies find that consumers equate sustainability with "greenness", this implies that consumers are only focused on the environmental pillar of sustainable food, therefore forgoing other aspects such as the social and economic pillars (Yanarella et al., 2009). This is acknowledged in a study conducted by Lazzarini et al., (2017) which discusses that while sustainability comprises environmental, social, and developmental dimensions, consumers tend to neglect economic and cultural dimensions. Furthermore, it was found that consumers frequently relate environmental issues with the term 'sustainability' (Grunert et al., 2014).

It is not surprising that consumers' hold this understanding as even within the literature itself studies frequently discuss the concept of food sustainability regarding the environmental aspect. For example, the study conducted by Hsu et al., (2020) focuses on exploring consumers' interest in choosing sustainable food. Within the study itself it is emphasized that environmental education is necessary for consumers to adopt purchasing behaviours towards sustainable food. Likewise, a study Vermeir et al., (2020) discusses ways in which to encourage consumers to

change their eating habits towards more environmentally sustainable food. It is accepted that a need for education to enhance consumer knowledge is needed, however these studies appear to navigate towards the environmental pillar of sustainable food rather than including all aspects in their educational proposals.

### **3.2 Organic Food**

Currently, it is stated that organic food is the most common sustainable food in the market (Wang and Gao, 2017). Within the sustainable food literature, there has been a focus on consumer preferences for organic food labels (Sirieix et al., 2013). As consumers use the presence of an organic label to evaluate the environmental friendliness of their food. Thus, organic labels positively influenced perceived environmental sustainability of food (Lazzarini et al., 2016). Furthermore, the literature shows that consumers perceive labels for organic agriculture including the Organic Farmers and the European label to be sustainable labels (Sirieix et al., 2013).

It has been shown that consumers' purchase organic food due to it being considered to be safer, healthier, and more environmentally friendly compared to conventionally produced food (Zanoli et al., 2013). Whilst it has been widely cited that organic food could be considered more sustainable than conventionally produced food, there is an equal volume of research that would debate this notion, as organic food does not necessarily inhabit all aspects of what makes up sustainable food. Despite this, it is evident from the literature that consumers have an understanding that organic food is in fact sustainable food. This understanding is harmful, as while consumers believe they are contributing to sustainable food consumption this may not be the case (Searchinger et al., 2018). This trend is not only found within the organic food market but also can be found in other niche food markets such as local food.

### **3.3 Local Food**

Studies on the consumption of local food have significantly increased as consumers perceive local food to be environmentally friendly, thus consumers' have come to perceive local food as sustainable food (Megicks et al., 2012). The act of buying local food has become intertwined with ethical and environmental benefits such as reduced food miles and improved animal welfare. When buying local foods, consumers often do so for reasons including the product itself and their concerns and perceptions of food-related issues, such as a positive association with the environment and sustainable consumption (Megicks et al., 2012).

So far what is known regarding consumers' understanding local food to be sustainable food is that often consumers will state that origin of food as being important to sustainability, with long distanced origins of food being classed as bad for the environment (Shi et al., 2018). Particularly, there have been studies which investigated consumers' knowledge and/or perceptions of which aspects of food production as being more harmful for the environment. Within this it was found that consumers were more concerned with the country-of-origin impact on the climate compared to the types of foods that have varying degrees of harmful impact on the environment e.g., types of meat (Shi et al., 2018).

It is suggested that people use easily accessible information, such as the country of origin, to evaluate the climate impact of their food choices. Consumers are easily aware of the distances between countries but may lack other information of the climate impacts of foods such as meats being more damaging in terms of the climate (Shi et al., 2018). It is argued that only focusing on distance of the source of food results in an inaccurate estimation of climate

impact of the foods as Shi et al., (2018) argues that the type of meat is a better and more important indication of the environmental impact than country of origin. Therefore, it could be suggested that consumers have a biased view of local food. The results of Shi et al., (2018) findings are reflected in a study conducted by Tobler et al. (2011). In this study it was found that consumers evaluated the environmental friendliness of different vegetable products based on the product's country of origin and production method. Thus, this may imply that consumers prefer local food when making environmentally friendly food choices. This notion is supported by studies which state that local food products are more environmentally friendly than imported products due to the transport mode and distance.

### **3.4 Plant-based Diets**

It has been found that consumers often link the concept of sustainable food to specific diets, such as plant-based diets. The perception that plant-based diets are sustainable is due to current food production from livestock having a significant negative impact on the environment (González et al., 2020). Research has thus focused on the amount of plant versus meat products, and it has been suggested that eating more plants and less meat would contribute to a diet that is good for both people and the planet (Pearson et al., 2014). It must be noted however that consumers opting for a more plant-based diet may not necessarily do this out of motivation for achieving a sustainable diet but for their personal health, as consumers perceive a strong link between health and sustainability (Pearson et al., 2014). Thus, while consumers perceive the concepts of health and sustainability to be correlated, consumers still prioritise health over sustainability (Van Loo et al., 2017).

### **Implications for Theory and Practice**

This paper provides an overview of consumers' understanding of sustainable food. It has been found that consumers do not possess a strong understanding of sustainable food, as consumers perceive sustainable like foods, such as environmentally friendly foods, to be sustainable food. This understanding of sustainable like foods to be entirely sustainable is also reflected in the literature, with many authors investigating consumers buying behaviour towards various food groups such as organic and local food whereas these are not inherently sustainable food (Muller et al., 2017).

The literature should focus on sustainable food that encompasses all pillars of sustainability. Furthermore, the literature should provide a stronger focus on the subject as currently the sustainable food literature is highly fragmented. Additionally, further research which focuses on ways to enhance consumer knowledge and purchasing behaviour towards sustainable food should include all elements of sustainability rather than solely focusing on the environmental pillar.

Regarding the practical implications of this study, this study has highlighted the need to increase consumers' knowledge and awareness of sustainable food. Furthermore, when consumers have adequate knowledge of the impact of their food choices, this can support them in making informed food choices. This includes informing consumers on the correct food choices that encompass all elements of sustainability. Therefore, it is suggested to adopt policy approaches, including public information campaigns, and labelling to enhance consumer knowledge and awareness regarding sustainable food choices (Garnett et al., 2015).

## References

- Dixon-Woods, M. and Fitzpatrick, R., (2001) Qualitative research in systematic reviews. *British Medical Journal*, Vol.323(7316), pp. 765–766.
- European Commission (2019) Sustainable Food. European Commission.
- Forbes, S. L., Cohen, D. A., Cullen, R., Wratten, S. D., and Fountain, J. (2009). Consumer attitudes regarding environmentally sustainable wine: An exploratory study of the New Zealand marketplace. *Journal of Cleaner Production*, Vol. 17(13), pp. 1195–1199.
- Garnett, T., Mathewson, S., Angelides, P., and Borthwick, F. (2015). Policies and actions to shift eating patterns: what works? *Foresight*, Vol. 515(7528), pp. 518-522.
- González, N., Marquès, M., Nadal, M., and Domingo, J. L. (2020). Meat consumption: Which are the current global risks? A review of recent (2010-2020) evidences. *Food research international (Ottawa, Ont.)*, Vol. 137(1), pp. 109341.
- Grunert, K. G., Hieke, S., & Wills, J. (2014). Sustainability labels on food products: Consumer motivation, understanding and use. *Food policy*, Vol. 44(1), 177-189.
- Gutierrez, A. and Thornton, T. (2014). Can Consumers Understand Sustainability through Seafood Eco-Labels? A U.S. and UK Case Study. *Sustainability (Switzerland)*, 6(11), pp. 8195-8217.
- Hsu, S. Y., Wang, H. C., Ho, J. L., and Chen, H. C. (2020). Exploring Consumers' Interest in Choosing Sustainable Food. *Frontiers in psychology*, Vol. 11(1), pp. 489.
- Jesson J., Matheson L. and Lacey F.M. (2011). *Doing your literature review: traditional and systematic techniques*. Los Angeles & London: SAGE Publications.
- Lazzarini, G. A., Visschers, V. H. M., and Siegrist, M. (2017). Our own country is best: Factors influencing consumers sustainability perceptions of plant-based foods. *Food Quality and Preference*, Vol. 60(1), pp.165–177.
- Megicks, P., Juliet Memery J. and Angell, R.J. (2012) Understanding local food shopping: Unpacking the ethical dimension. *Journal of Marketing Management*, Vol. 28(3-4), pp. 264-289.
- Pearson, D., Friel, S. and Lawrence, M. (2014) Building environmentally sustainable food systems on informed citizen choices: evidence from Australia. *Biological Agriculture & Horticulture*, Vol. 30(3), pp. 183-197.
- Popovic I., Bossink, B.A.G. and van der Sijde, P.C. (2019). "Factors Influencing Consumers' Decision to Purchase Food in Environmentally Friendly Packaging: What Do We Know and Where Do We Go from Here?". *Sustainability, MDPI, Open Access Journal*, Vol. 11(24), pp. 1-22.
- Searchinger, T.D., Wiersma, S., and Beringer, T. (2018). Assessing the efficiency of changes in land use for mitigating climate change. *Nature*, Vol. 564 (1), pp.249–253.
- Shi, J., Visschers, V. H., Bumann, N., and Siegrist, M. (2018). Consumers' climate-impact estimations of different food products. *Journal of Cleaner Production*, Vol. 172(1), pp. 1646-1653.
- Sidali, K.L., Spiller, A. and von Meyer-Hofer, M. (2016) "Consumer Expectations Regarding Sustainable Food: Insights from Developed and Emerging Markets". *International Food and Agribusiness Management Review, International Food and Agribusiness Management Association*, Vol. 19(3), pp. 1-30.
- Sirieix, L., Delanchy, M., Remaud, H., Zepeda, L., and Gurviez, P. (2013). Consumers' perceptions of individual and combined sustainable food labels: a UK pilot investigation. *International Journal of Consumer Studies*, Vol. 37(2), pp. 143-151.
- Tobler, C., Visschers, V., and Siegrist, M. (2011). Eating green. Consumers' willingness to adopt ecological food consumption behaviors. *Appetite*, Vol. 57(3), pp. 674-82.
- Van Loo, E., Hoefkens, C. and Verbeke, W. (2017). Healthy, sustainable and plant-based eating: Perceived (mis)match and involvement-based consumer segments as targets for future policy. *Food Policy*, Vol. 69(1), pp. 46-57.
- Vermeir, I., Weijters, B., De Houwer, J., Geuens, M., Slabbinck, H., Spruyt, A., Van Kerchhove, A. Van Lippevelde, W. De Steur, H. and Verbeke, W. (2020). Environmentally sustainable food consumption : a review and research agenda from a goal-directed perspective. *FRONTIERS IN PSYCHOLOGY*, 11(1).
- Wang, E. and Gao, Z. (2017). Chinese Consumer Quality Perception and Preference of Traditional Sustainable Rice Produced by the Integrated Rice–Fish System. *Sustainability*, Vol.9(12), pp. 2282.
- Yanarella, E.J. Levine, R. and Lancaster, R. (2009) Research and Solutions: "Green" vs. Sustainability: From Semantics to Enlightenment. *Sustainability: The Journal of Record*, Vol. 2(5), pp. 296-302.
- Zanolli, R., Scarpa, R., Napolitano, F., Piasentier, E., Naspetti, S. and Bruschi, V. (2013) Organic label as identifier of environmentally-related quality: a consumer choice experiment on beef in Italy. *Renewable Agriculture and Food Systems*, Vol. 28(1), pp. 70–79.