



Research Article

The Influence of Green Consumption Values on How Consumers Form Overall Sustainability Perceptions of Food Products and Brands

Melina Burkert^{a*} | Verena Hüttl-Maack^a | José María Gil^b | Djamel Rahmani^b

^aDepartment of Marketing and Consumer Behavior, University of Hohenheim, Stuttgart, Baden-Württemberg, Germany

^bCenter for Agro-Food Economics and Development-UPC-IRTA, Catelldefels, Catalonia, Spain

ABSTRACT

Recently, increasing numbers of consumers have embraced higher green consumption values and expressed environmental concern through their shopping behavior. These consumers are a promising target group for sustainable products. However, especially in the food sector, it is challenging for consumers to recognize these products because of a multitude of sustainability indicators. Therefore, it is important to understand how green consumers form their perception of product sustainability based on the information provided. This research draws on means–end chain theory and the elaboration likelihood model (ELM) to explain how green consumers form an overall product sustainability perception by considering environmental and social product sustainability benefits. To provide preliminary correlational evidence, we analyzed the survey data of 1,577 European consumers who assessed three different food products. Using structural equation modeling, we found that consumers with higher green consumption values perceive environmental and social sustainability product benefits to a greater extent than those with lower green values. Increased perceptions of environmental sustainability benefits, in turn, enhance overall product sustainability perceptions, ultimately leading to a higher perceived brand sustainability. By integrating and applying means–end chain theory along with the ELM in a green product consumption context, our study provides insight on the impact of environmental and social product sustainability benefits on consumers' product sustainability perceptions. As such, the results offer a valuable starting point for further investigation of sustainable marketing strategies and consumers' product sustainability perceptions. Additionally, our findings provide guidance to food marketers seeking to promote sustainable products.

KEYWORDS

Green consumption values, sustainability benefits, sustainability perception, food products, means-end chain theory, elaboration likelihood model, structural equation modeling

ARTICLE HISTORY

Received: 15 March 2023

Accepted: 6 June 2023

Published: 13 June 2023

I. Introduction

Undeniably, enhancing sustainability in the food sector is crucial, as everyday food consumption is a major contributor to emitted greenhouse gases and other

environmentally harmful impacts. Global food systems are currently estimated to be responsible for up to one-third of anthropogenic greenhouse gas emissions worldwide (Crippa et al., 2021). Numerous aspects



Corresponding author:

Melina Burkert | melina.burkert@uni-hohenheim.de | Department of Marketing and Consumer Behavior, University of Hohenheim, Stuttgart, Baden-Württemberg, Germany.

Copyright: © 2023 by the authors. | Published by: Luminous Insights LLC, Wyoming, USA.



This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

of the product life cycle of food, such as the use of land, production in the agricultural system, and further processing (e.g., transportation, packaging, retail handling, preparation and waste removal) play a role and offer starting points for designing food more sustainably (Crippa et al., 2021; Lazzarini et al., 2017).

On the consumer side, awareness has also increased and consumers have started to express their concern for the environment through their shopping behaviors (Gershoff & Frels, 2015; Haws et al., 2014). Haws et al. (2014), captured this tendency in their research on green consumption values, which translate environmental concerns into purchasing behavior and thereby, increase consumer motivation to buy environmentally friendly, sustainable products. Consumers with high green consumption values, who see the world through “green-tinted glasses,” as the authors figuratively described it (Haws et al., 2014, p. 336), generally respond more positively to green or sustainable products and their marketing (Bailey et al., 2018). Thus, they represent an important, and solidly growing target group (Haws et al., 2014).

However, development toward more sustainable consumption can benefit from green consumers and their interest in sustainable products only if these consumers recognize and perceive products as sustainable. While previous research has already shown that these consumers actively search for sustainability information (Leonidou & Skarmeas, 2017; Schuhwerk & Lefkoff-Hagius, 1995), it is still largely unclear how consumers assess the sustainability of a product based on the available information (Fischer et al., 2021; Sánchez-Chaparro et al., 2022). In a similar vein, in the field of Corporate Social Responsibility (CSR) research, stakeholder-perceived CSR has long been examined to investigate CSR impacts on the respective target audience (Becker-Olsen et al., 2006; Öberseder et al., 2014). To better target green consumers and gain a deeper understanding of how they process detailed sustainability information to evaluate product sustainability, we look from a consumer-centered perspective at sustainable consumer behavior and marketing.

Therefore, our research questions are two-fold.

First, how do green consumption values influence consumers’ sustainability perceptions of products and their associated brands? Second, what are the roles that information processing and the perception of product sustainability benefits play?

In light of the elaboration likelihood model (ELM) and means–end chain theory (Gutman, 1982; Petty & Cacioppo, 1986), we argue that consumers do not automatically form an abstract perception of product sustainability. They need to see specific benefits that foster sustainability (i.e., environmental and social factors of a product that contribute to the environment and society), which we refer to as sustainability benefits, to form an overall more abstract sustainability perception (Dorce et al., 2021). In this sense, consumers must be able to interpret these pieces of information in a meaningful way when searching for sustainable products (White et al., 2019; Huber et al., 2004). The perception of these sustainability benefits based on detailed sustainability information about product characteristics varies among people with different degrees of green consumption values, such that it increases for people with high green consumption values compared to consumers low in these values. We argue that this occurs due to different levels of processing intensity with regard to the available sustainability-related information.

To answer our research questions, we surveyed 1,577 consumers, distributed across three food product categories: oyster mushrooms, meat substitutes, and fruit. For all products, we found that green consumption values positively influence perceptions of both environmental and social sustainability benefits. Additionally, we identify value-aligned environmental benefits as mediators of the effect of green consumption values on the overall sustainability perceptions of the product, which, in turn, determines the sustainability perception of the brand.

Our work contributes to the growing research on sustainable marketing and consumer behavior by documenting that consumers with different levels of green consumption values vary in their formation of abstract product sustainability perceptions based on sustainability product information. By drawing on means–end

chain theory and the ELM in a preliminary investigation, we expand our understanding of information processing strategies and the perceptual process of product sustainability perception. Thus, our study provides an interesting starting point for further research on the role of sustainability information in the context of sustainable marketing. In addition, our findings provide implications for food marketers seeking to promote sustainable products to a growing consumer group.

The remainder of this article is structured as follows. The second section provides an overview of the literature and relevant assumptions of both means–end chain theory and the ELM. Based on this, we derive our conceptual framework and hypotheses. The fourth section presents the methodology followed by the results. In the last section, we discuss our findings and implications as well as limitations and avenues for future research.

2. Green Consumers' Formation of Sustainability Perceptions of Products and Brands

Green consumption values describe a consumer's general inclination toward valuing the conservation of the environment and aligning their consumption practices accordingly; [Haws et al. \(2014\)](#) define this construct as “the tendency to express the value of environmental protection through one's purchases and consumption behaviors” (p. 337). Their research has shown that for products labeled as sustainable, people with high green consumption values not only evaluate the environmentally friendly attributes of the product more positively but also perceive attributes that are not environmentally friendly relatively more favorably through motivated reasoning. However, for consumers to behave in a value-consistent way, it is crucial that they recognize a product as sustainable in the first place ([Summers et al., 2016](#)). Especially in light of the large array of products promoted as sustainable, it is important to investigate how consumers with high green consumption values initially form their sustainability perceptions.

Sustainability as a multifaceted concept based on several dimensions cannot be evaluated by a consumer without drawing on integrated knowledge ([Sánchez-](#)

[Chaparro et al., 2022](#); [Luchs & Miller, 2015](#)). When it comes to sustainability information, consumers are confronted with a tremendous amount of (sometimes even contradictory) information ([Leonidou & Skarmeas, 2017](#); [Shao, 2016](#); [Chen & Chang, 2013](#); [Franco & Cicatiello, 2019](#)). This specifically applies to food, as consumers must interpret numerous different indicators in order to judge degrees of sustainability. In addition to seasonality and locality, organic food or fair trade, carbon footprint, and other specific sustainability cues play a role ([Grunert et al., 2014](#)). In the presence of a substantial volume of complex information, green consumers must filter and interpret these diverse pieces of information in a meaningful way to form a global sustainability perception. In this context, how they form abstract and overall sustainability perceptions in the above-described rich information environments remains unclear.

The formation of sustainability and other types of perceptions is based on information processing in which consumers are exposed to various information stimuli that raise their attention and result in interpretative consideration ([Mothersbaugh et al., 2020](#)). This process unites elements of the means–end chain theory and the ELM. Therefore, established information processing theories were employed to inform the research question. While means–end chain theory refers to the process of how abstract product evaluations are formed based on relevant product attributes and their perceived consequences ([Huber et al., 2004](#); [Gutman, 1982](#)), the ELM is concerned with how the provided information details are processed depending on varying levels of involvement depending in part on consumers' ability and motivation to process information ([Petty & Cacioppo, 1986](#); [Petty et al., 1983](#)).

Means–end chain theory explains how consumers' abstract product evaluations are formed by associating relevant product attributes with perceived consequences and desired purposes in a hierarchical manner ([Huber et al., 2004](#); [Gutman, 1982](#)). The basic contours of the theory indicate that consumers evaluate products by associating pertinent product attributes with perceived consequences for

relevant desired ends (Huber et al., 2004). Crucially, the desired end states are characterized by a markedly higher degree of abstraction than the product attributes (Huber et al., 2004). Therefore, consumers mentally form a chain when making buying decisions that link product attributes to benefits, which in turn contribute to the fulfillment of abstract values (Gutman, 1982; Brunsø et al., 2004). In the context of sustainability perceptions, having as little negative impact as possible on the environment and society as a goal of sustainable products (Lazzarini et al., 2017) is characterized by a significantly higher degree of abstractness than specific product attributes that are described as sustainable. Thus, means–end chain theory predicts that consumers with strong and relevant value sets will aim to interpret specific and detailed product benefit information and link that information to a more abstract appraisal of product sustainability (Lazzarini et al., 2017).

An important target group for sustainable products are green consumers who are interested in the topic of sustainability and want to express their concern for the environment through their purchasing decisions (Barbarossa & De Pelsmacker, 2016; Haws et al., 2014). Therefore, it is particularly interesting to investigate how this group perceives product sustainability benefits and links them to abstract sustainability perceptions. To increase the understanding of the different strategies that consumers follow to process information while forming overall product and brand evaluations, dual-process models can be consulted. One of the most prominent of these is the ELM (Petty & Cacioppo, 1986).

According to the ELM, there are two main routes to the formation of evaluations, and ultimately, to persuasion (Petty & Cacioppo, 1986). One is the central route, which involves careful consideration and in-depth processing of the information presented, and the other is the peripheral route, which involves a more superficial processing of the information. This theory proposes that when consumers have the cognitive ability and motivation to process information, they are more likely to form their evaluation via the central route, which means that they form evaluations based

on the quality and details of the provided information (Petty & Cacioppo, 1986; Petty et al., 1983). In contrast, consumers with lower levels of ability and/or motivation to process information tend to rely more on superficial cues, such as the source of information or emotional appeals, characterizing the peripheral route to persuasion.

Figure 1 draws on and integrates both means–end theory and ELM theory to hypothesize the likely flow of the perception process that informs sustainability perceptions based on product-related sustainability benefit information.

3. Summary of Predictions

Our conceptual model (see Figure 2) integratively considers the assumptions of both the means–end chain theory and ELM. It focuses on investigating the influence of green consumption values on abstract sustainability perceptions mediated by the perceived environmental and social sustainability benefits.

To derive predictions about how consumers with high green consumption values form their sustainability perceptions of products (and brands), we assume that these consumers are particularly interested in sustainability (Haws et al., 2014). Sustainability-related information should be of higher perceived relevance to them in order to evaluate to which extent a product or brand aligns with their values they aim to express with their consumption. Given their higher motivation to process relevant information and engage cognitively (Borgstede et al., 2014; Lagerkvist et al., 2023; Schuhwerk & Lefkoff-Hagius, 1995), they are likely to utilize the central route of information processing (Petty et al., 1983). Deeper cognitive processing should enable them to interpret the information provided in a way that generates perceptions of product sustainability benefits (Cialdini et al., 1981). In this context, increased perceptions of sustainability benefits of a product are likely to reflect deeper cognitive processing among green consumers.

Referring to means–end chain theory, we assume that the evaluation of a product's alignment with consumer values follows an indirect rather than a direct process (Brunso et al., 2004; Huber et al., 2004). Con-

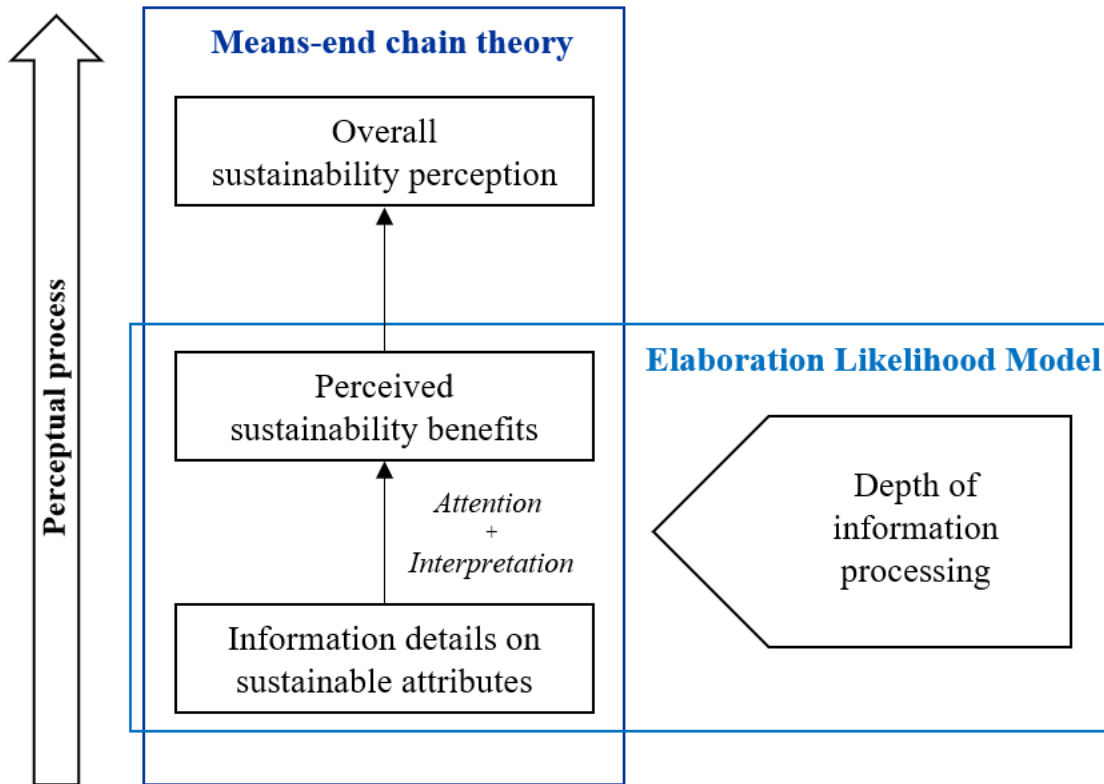


Figure 1. Theoretically assumed perceptual process.

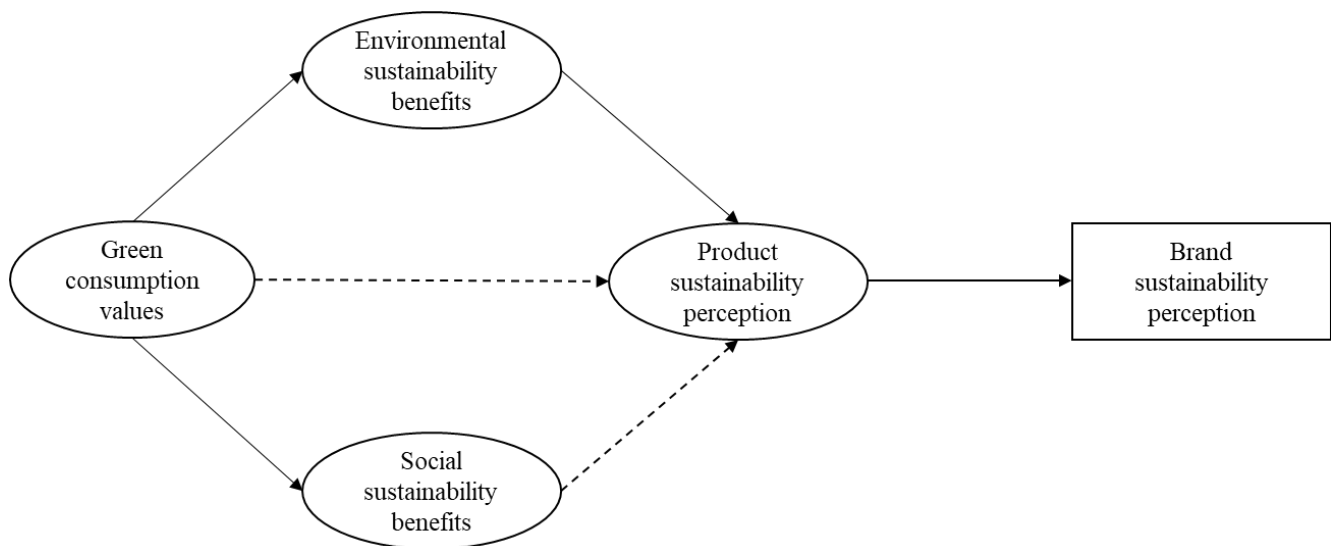


Figure 2. Conceptual model.

sequently, we do not assume that consumers holding green consumption values will directly perceive products as more sustainable; instead, their overall sustainability perception will likely be contingent on perceiving the sustainability benefits offered by the product (Huber et al., 2004; Meise et al., 2014). By sustainability benefits, we mean the concrete environmental and social factors of a product that contribute to the environment and society, for example, the reduction of greenhouse gas emissions, environmentally friendly land use, the reduction of water pollution, environmentally friendly resource use, fair wages for all people working in the value chain, good working conditions in the value chain, and compliance with human rights throughout the value chain (Dorce et al., 2021; Lazarini et al., 2017).

Although green consumption values clearly relate to the environmental dimension of sustainability, we expect effects not only on perceptions of environmental but also on social sustainability benefits as well. This reasoning is based on prior research indicating that consumers who care about the environment also have social sustainability concerns and vice versa (Barbarossa & De Pelsmacker, 2016; Borgstede et al., 2014). The connection between environmental and social sustainability that consumers seem to make is apparently based on the overarching objectives of sustainability. In general, the goal of sustainability is to preserve the environment and society for the future (Brundtland, 1987; Elkington, 1997). Thus, the goal of protecting the environment is grounded in the goal of preserving one's own species and enabling future societies to live on our planet. Although both spheres are characterized by different foci, they are likely to be connected in people's minds, as both are directed toward creating a sustainable future for mankind. Due to the interconnectivity and joint overarching goal of environmental and social sustainability, we assume that stronger green values will impact perceptions of both environmental and social product benefit. Thus, we hypothesize:

H1. Green consumption values will positively influence the extent to which consumers perceive the environmental and social sustainability benefits of a product.

Therefore, product sustainability benefits are likely to link concrete product attributes and the higher-level, more abstract perception of product sustainability (Brunso et al., 2004; Gutman, 1982). However, this link should be stronger when perceived benefits are in line with desired end states. In general, consumers build their perceptions and choices based on information that is congruent with their self-identity and values (McAlexander et al., 2002; Verplanken & Holland, 2002; Hoogland et al., 2007). Means–end chain theory supports this congruence effect, as it describes a consumer's goal to choose products or brands that fulfill their core values (Gurel-Atay et al., 2017; Huber et al., 2004).

Whereas social benefits are related to the overarching goal of sustainability and are therefore also perceived more strongly by green consumers, they do not relate to the specific goal of green consumption values (i.e., an expression of environmental concern through shopping behavior; Haws et al., 2014). Hence, environmental sustainability benefits pertain more concretely to how the product helps to achieve the value-aligned goal of environmental preservation (Hoogland et al., 2007; McAlexander et al., 2002; Verplanken & Holland, 2002). Therefore, the mediation of green consumption values on product sustainability perceptions is more likely to occur through environmental rather than social benefits. Consequently, we hypothesize:

H2. Environmental sustainability benefits of the product will mediate the effect of green consumption values on the sustainability perception of the product. There will be no such mediation via social sustainability benefits.

In general, brands' product benefit descriptions can serve as brand image cues. Therefore, product perceptions influence the perception of the brand itself (Berger et al., 2007). In a market environment where a product's sustainability benefits are increasingly important, it is not only worthwhile for brands to offer sustainable product alternatives, but also to differentiate through a sustainable brand image (Baalbaki & Guzmán, 2016; Becker-Olsen et al., 2006). Notably, perceived product sustainability can extend to other domains, such as perceptions of brand sustainability. Sustainable products can be seen

as tangible representation of a brand's sustainability efforts (Brown & Dacin, 1997; Golob et al., 2022). They indicate that when it comes to the life cycle of its products, the brand prioritizes environmental and social responsibility. In addition, the increased prominence of specific product attributes or perceptions affects related brand evaluations (Gardner, 1983). Thus, we expect that an increase in product sustainability benefit perceptions and therefore a greater prominence of the products' sustainability will have a positive effect on brand sustainability perception, leading to our final hypothesis:

H3. An increase in product sustainability perceptions will lead to increased brand sustainability perception.

4. Methods

4.1. Sample and Data Collection

To empirically test our conceptual framework, we partnered with food suppliers from Europe (Hungary, the Netherlands, and Poland) and drew three consumer samples for three different food products (oyster mushrooms, bean-based meat substitutes, and fruit). The consumer samples represented the companies' corresponding potential target markets. These were primarily associated with national markets with the exception of oyster mushrooms, which were distributed in Hungary and Southern Germany. We chose fruit and vegetable products to account for differences among them, with various levels of pre-processing and extent of preparation by the consumer. For the samples, we used consumers for whom the product category was of interest, and the samples were representative of the country in which the food suppliers operated. The participants were recruited via a market research agency using a consumer access panel. A formal, structured questionnaire was developed to collect responses and was distributed online. The survey was designed in English and translated into the corresponding national languages. To validate the translations, ambiguous parts or unclear cases were back-translated and discussed in feedback loops between the research team and the translators.

All potential respondents were first asked to read and confirm the informed consent guidelines before

completing the remainder of the survey. After providing demographic data, each participant was presented with a brief description of either a sustainable oyster mushroom, meat substitute, or fruit value chain based on the real business cases of our partner food suppliers (please see the anonymized descriptions of the value chains in Table 1). Based on this information, the participants then rated various product-related variables, including the perceived sustainability benefits of the presented product, perceived product sustainability, and brand sustainability. After an unrelated survey section that addressed the importance of various attributes of products from the corresponding product category, participants were asked to complete a section containing items that measured personal attitudes and values, including green consumption values.

Data collection took place between February and July 2022 and yielded a total of 1,625 participating consumers. We only included responses without missing values in our analyses; hence, 48 cases were excluded, resulting in a final sample of $N = 1,577$ ($n_{\text{oyster mushrooms}} = 514$, $n_{\text{meat substitute}} = 551$, $n_{\text{fruit}} = 512$). The socio-economic profile of the sample is provided in Table 2.

To reduce the potential for common method variance, we implemented different procedural remedies provided by Podsakoff et al. (2003). We placed the independent and dependent measures in different thematic sections to make them seem less closely related. Also, we assured respondents at several points throughout the questionnaire that we did not intend to evaluate the participants themselves but emphasized our interest in their personal, subjective views. Additionally, we took great care to improve the comprehensibility of the questionnaire by avoiding complex questions and vague concepts, and focused on using concise and straightforward language. Apart from these preventative measures, we also examined common method bias statistically using Harman's single factor test. It revealed a common method variance of 47.20%, which is below the recommended threshold of 50% (Podsakoff et al., 2003). Since it was relatively close to the threshold, we included a common method variable in our structural model.

Table 1. Descriptions of the value chains.

Product	Description
Oyster mushrooms	XXX is a family-run medium-sized enterprise that has been working in the field of mushroom cultivation for almost 30 years. Currently, it is the largest oyster mushroom producer in Central Europe with its fresh oyster mushroom widely available in retail stores in Hungary and beyond. The main activities include substrate production for oyster mushroom, as well as cultivation and distribution of fresh oyster mushrooms in wholesale and retail markets, and <i>generation of electric power and heat energy from biogas production from the by-product of mushroom production securing zero waste approach and nutrient recycling</i> . The company also produces and sells organic fresh oyster mushroom with using <i>organic certified wheat straw as substrate material</i> . Either organic or conventional, XXX pays extra care that the mushroom production is <i>fully free of chemicals and pesticides</i> , which is backed by conscious technology development. This is the reason why the activity of XXX is in full compliance with the conditions of <i>organic mushroom production</i> , and it is also <i>officially certified</i> by Biokontroll Hungária Nonprofit Ltd.
Bean-based meat substitute	XXX is a platform for innovation and transition of the global food system which has a business community for ingredient suppliers, food manufacturers and other actors in the field of plant-based, vegan or vegetarian products. Currently, there is about 1.000 hectare of land where fava beans – a traditional Dutch bean – are harvested. Fava beans can be <i>processed by energy-efficient technologies</i> to deliver ingredients and consumer ready products that are <i>locally grown, without GM or other additives</i> . One of XXX's partners – XXX – offers different meat analogues based on fava beans that are <i>vegan and soy-free meat replacer</i> . The products can be bought in cold storage and are packaged within plastic trays with a cardboard sleeve.
Fruit	XXX is an association of 20 Polish farmers that produce fruits in an <i>organic farming system and use probiotics</i> . They manage more than 600 hectares of organic orchards and collect about 30,000 tons of organic fruits every year. Their cultivation methods of the <i>cooperative aim to develop regenerative agriculture and improve the quality of the products</i> that contain 40 – 50 % more nutrients, vitamins and minerals than fruits from conventional production. Additionally, the method <i>strengthens soil protection and leads to constant improvement of the soil fertility</i> . The organically produced fruits are sold as single fruits, in so-called 1 day packaging (4 pieces of fruit) or in large 1.5 – 3 kg family packages.

Note. Sustainability aspects in the value chain descriptions are italicized.

No differences were apparent between the structural model with and without the common method factor in either effect coefficients or significances. This suggests that a common method bias did not seem to affect the reliability, validity, and parameter estimates to any worrying extent; consequently, we continued our analysis (Fuller et al., 2016; Podsakoff et al., 2003).

4.2. Measures

To measure relevant constructs, we employed established items, using 7-point Likert-type scales (see Table 3 for all constructs and measurement items). To measure green consumption values, we used the six-item scale developed by Haws et al. (2014). Dorce et al. (2021) proposed a formulation for statements to capture perceived sustainability benefits at the product

Table 2. Socio-demographic profile of respondents.

Variables		Oyster mushrooms (OM)	Meat substitutes (MS)	Fruits(FR)
Gender	Male (%)	48.64	49.55	50.20
	Female (%)	51.17	50.27	49.80
	Other (%)	.19	.18	.00
Age	Years (mean)	47.80	46.79	44.26
Education	Low (ISCED 0-2) (%)	11.67	24.14	4.49
	Middle (ISCED 3-4) (%)	64.59	41.02	65.82
	High (ISCED 5-8) (%)	23.74	34.85	29.69
Sample size	Persons	514	551	512

level (e.g., “I believe the regular purchase of this product contributes to [sustainability benefit]”). We adopted this formulation and adjusted the choice of environmental and social sustainability benefits to fit fruit- and vegetable-based food products based on Lazzarini et al. (2017).

We were then able to ask the participants whether they thought that the regular purchase of the corresponding product would contribute to four environmentally sustainable benefits (the reduction of greenhouse gas emissions, environmentally friendly land use, water pollution, and environmentally friendly resource use) and three socially sustainable benefits (fair wages for all people in the value chain, good working conditions in the value chain, and compliance with human rights throughout the value chain). The perceived sustainability of the product was assessed using three items (that were adapted slightly) proposed by Gershoff and Frels (2015): “This [product] deserves to be labeled ‘sustainable.’ Purchasing this [product] is a sustainable choice, and a person who cares about sustainability would be likely to buy this [product].”

To capture an overarching, homogeneous perception of brand sustainability, while reducing participant burden and avoiding potential fatigue bias, we opted for a single-item measure. In the case of homogeneous constructs, single-item measures have been shown to perform equally well as multi-item measures (Diamantopoulos et al., 2012). Additionally, we controlled for age and gender because those demographic variables regularly impact (sustainable) food consumption vari-

ables (Verain et al., 2021).

5. Results

Using AMOS 29, we conducted a confirmatory factor analysis (CFA) with the latent constructs of green consumption values, product sustainability benefits, and product sustainability perception to assess their convergent and discriminant validity (see Table 4). Brand sustainability perception was included as a manifest variable in the CFA. Convergent validity was evaluated using factor loadings ($>.70$), composite reliabilities ($>.80$), and average variance extracted (AVE > 0.50) with the indicated threshold values as criteria (Fornell & Larcker, 1981; Anderson & Gerbing, 1988). As all AVEs were greater than the squared correlations of the between-measure pairs, the CFA was judged to exhibit discriminant validity (Fornell & Larcker, 1981). To evaluate the model fit, we relied on a set of indices and suggested threshold values: the normed chi square (<5.0), comparative fit index (CFI $\geq .95$), Tucker-Lewis index (TLI $\geq .96$), normed fit index (NFI $\geq .90$ or $.95$, according to the source), the root mean square error of approximation (RMSEA $\leq .06$), and the standardized root mean square residual (SRMR $\leq .08$) (Wheaton et al., 1977; Hu & Bentler, 1999; Bentler & Bonett, 1980). The fit of the measurement model was considered satisfactory according to meeting all the listed criteria (see Table 4 and Table 5).

To test H1-H3, maximum likelihood (ML) estimation was used to analyze the fit of the hypothesized structural model to the respondent data. Model fit was determined to be adequate for all three product cate-

Table 3. Measures and items.

Construct	Variable	Item	Source
Green consumption values (GCV)	GCV1	It is important to me that the products I use do not harm the environment.	Haws et al. (2014)
	GCV2	I consider the potential environmental impact of my actions when making many of my decisions.	
	GCV3	My purchase habits are affected by my concern for our environment.	
	GCV4	I am concerned about wasting the resources of our planet.	
	GCV5	I would describe myself as environmentally responsible.	
	GCV6	I am willing to be inconvenienced in order to take actions that are more environmentally friendly.	
Environmental sustainability benefits (ESB)	ESB1	I believe that the regular purchase of this product contributes to the reduction of greenhouse gas emissions.	Adapted from: Dorce et al. (2021), and Lazzarini et al. (2017)
	ESB2	I believe that the regular purchase of this product contributes to an environmentally friendly land use.	
	ESB3	I believe that the regular purchase of this product contributes to the reduction of water pollution.	
	ESB4	I believe that the regular purchase of this product contributes to an environmentally friendly resource use.	
Social sustainability benefits (SSB)	SSB1	I believe that the regular purchase of this product contributes to fair wages for all people working in the value chain.	
	SSB2	I believe that the regular purchase of this product contributes to good working conditions in the value chain.	
	SSB3	I believe that the regular purchase of this product contributes to compliance with human rights throughout the value chain.	
Product sustainability perception (PSP)	PSP1	This product deserves to be labeled "sustainable".	Gershoff and Frels (2015)
	PSP2	Purchasing this product is a sustainable choice.	
	PSP3	A person who cares about sustainability would be likely to buy this product.	
Brand sustainability perception (BSP)	BSP	This brand is a very sustainable brand.	Baalbaki and Guzmán (2016)

Note. All items are measured on 7-point bipolar scales.

Table 4. Latent constructs with observable items, factor loadings, and scale reliability.

Constructs	Items	Mean (SD)			FL		
		OM	MS	FR	OM	MS	FR
Green consumption values (GCV)	GCV1	4.94 (1.48)	4.85 (1.35)	5.49 (1.37)	.857	.737	.820
	GCV2	4.61 (1.41)	4.66 (1.35)	5.12 (1.42)	.888	.826	.843
	GCV3	4.44 (1.53)	4.47 (1.42)	5.05 (1.50)	.842	.785	.854
	GCV4	5.22 (1.61)	4.97 (1.42)	5.59 (1.42)	.766	.748	.752
	GCV5	4.61 (1.41)	4.60 (1.33)	5.12 (1.37)	.765	.743	.801
	GCV6	4.49 (1.50)	4.48 (1.35)	4.97 (1.49)	.790	.668	.840
Environmental sustainability benefits (ESB)	ESB1	4.32 (1.59)	4.73 (1.38)	4.92 (1.55)	.898	.826	.825
	ESB2	4.59 (1.51)	4.82 (1.31)	5.18 (1.49)	.921	.848	.925
	ESB3	4.31 (1.55)	4.65 (1.26)	5.10 (1.47)	.907	.820	.924
	ESB4	4.55 (1.60)	4.80 (1.29)	5.20 (1.48)	.911	.861	.933
Social sustainability benefits (SSB)	SSB1	4.25 (1.53)	4.59 (1.28)	4.90 (1.51)	.938	.896	.928
	SSB2	4.27 (1.55)	4.59 (1.29)	5.00 (1.50)	.949	.896	.956
	SSB3	4.12 (1.65)	4.45 (1.38)	5.00 (1.51)	.906	.788	.930
Product sustainability perception (PSP)	PSP1	4.94 (1.50)	4.84 (1.27)	5.20 (1.48)	.944	.888	.931
	PSP2	4.91 (1.50)	4.88 (1.25)	5.22 (1.46)	.931	.897	.942
	PSP3	5.06 (1.51)	4.95 (1.29)	5.28 (1.50)	.861	.821	.911

Note. OM = Oyster mushrooms, MS = meat substitute, FR = fruit, FL = factor loadings; fit indices measurement model: normed $\chi^2 = 3.548$ (df = 330), $p = .00$; CFI = .97; TLI = .96; NFI = .95; SRMR = .03; RMSEA = 0.04; N = 1,577.

gories (see Table 6). To assess mediating effects, we used the bias-corrected bootstrap method (Mackinnon, 2017). This approach does not assume a normal distribution and generates asymmetric confidence intervals as non-parametric approximations of the sampling distribution. If the value of zero is not part of the 95% bootstrap confidence interval around an indirect effect, the indirect effect is significant at the .05 level (Mackinnon, 2017). For the procedure, we used 10,000 bootstrap samples from the data.

H1 posited that green consumption values would positively influence the perception of the (environmental and social) sustainability benefits of a product. Structural models for all three product categories showed significant direct effects of green consumption values on the perceived environmental sustainability benefits of the products (Oyster mushroom: $B_{OM} = .575$, meat substitute: $B_{MS} = .685$, fruit: $B_{FR} = .645$, all $p < .001$). The same applied to the direct effect of green consumption values on social sustainability benefits ($B_{OM} = .553$, $B_{MS} = .604$, $B_{FR} = .685$, all $p < .001$). Thus, green consumption

values positively influences perceptions of both types of sustainability benefits.

H2 predicted that the environmental benefits would mediate the effect of the values whereas the social benefits would not, as they would be more in line with the green consumption values. For all three products, perceived environmental sustainability benefits showed a significant direct effect on product sustainability perception ($B_{OM} = .743$, $B_{MS} = .713$, $B_{FR} = .933$, all $p < .001$). At the same time, the path between perceived social sustainability benefits and product sustainability perception was not significant for oyster mushrooms and fruits. However, for the meat substitute sample, we found a small positive direct effect of perceived social sustainability benefits on product sustainability perception ($B_{MS} = .128$, all $p = .035$).

The direct effect of green consumption values on product sustainability perception was not significant for any of the three products. We tested the significance of the indirect paths via sustainability benefits using

Table 5. Means, standard deviations, and bivariate correlations.

Oyster mushrooms								
Construct	Mean	SD	AVE	CR	GCV	ESB	SSB	PSP
GCV	4.72	1.28	.671	.924	<i>.819</i>			
ESB	4.44	1.48	.827	.950	.503	<i>.909</i>		
SSB	4.21	1.51	.867	.951	.475	.860	<i>.931</i>	
PSP	4.97	1.42	.833	.937	.431	.761	.651	<i>.913</i>
BSP	5.08	1.43	-	-	.365	.661	.566	.840
Meat substitute								
Construct	Mean	SD	AVE	CR	GCV	ESB	SSB	PSP
GCV	4.67 _b	1.09	.596	.898	<i>.772</i>			
ESB	4.75	1.15	.704	.905	.601	<i>.840</i>		
SSB	4.54	1.20	.742	.896	.518	.796	<i>.861</i>	
PSP	4.89	1.16	.756	.903	.457	.796	.674	<i>.870</i>
BSP	4.88	1.29	-	-	.353	.594	.548	.751
Fruits								
Construct	Mean	SD	AVE	CR	GCV	ESB	SSB	PSP
GCV	5.22 _{ab}	1.22	.671	.924	<i>.819</i>			
ESB	5.10	1.38	.827	.915	.570	<i>.903</i>		
SSB	4.99	1.44	.816	.930	.546	.874	<i>.903</i>	
PSP	5.23	1.41	.861	.949	.517	.853	.733	<i>.928</i>
BSP	5.22	1.47	-	-	.397	.657	.606	.690

Note. AVE = average variance extracted; CR = composite reliability; square roots of AVE are given on the diagonal (in italics); all correlations significant at the 1% level. GCV: The same subscripts indicate significant differences between the means at the 5%-significance level based on Games-Howell post-hoc test results.

bootstrapping. The results confirmed that perceived environmental sustainability benefits mediated the relationship between green consumption values and product sustainability perception (see Table 7). The indirect effect via social sustainability benefits was not significant; this was also the case for the meat substitute sample.

By taking together the non-significant direct effect of green consumption values on product sustainability perception and the significant indirect path via perceived environmental sustainability benefits, we identified a significant indirect-only mediation (Zhao et al., 2010). These results show a linkage between abstract green consumption values and general product sustainability perceptions via the perceived environmental sustainability benefits of the product.

H3 predicted that an increase in product sustain-

ability would ultimately lead to an increased brand sustainability perception. Our results indeed showed a significant direct effect of product sustainability perception on brand sustainability perception ($B_{OM} = .852, p < .001, B_{MS} = .857, p < .005, B_{FR} = .751, p < .001$).

6. Discussion

The present study provides new insights into the impact of green consumption values on the sustainability perception of products and brands through the lens of information processing. We capture those links in a preliminary correlational study using scenarios based on real-world food value chains and a large representative consumer sample. With regard to our research question, we report three key findings. First, both product environmental and social sustainability benefits are more strongly perceived if consumers hold higher green consumption values. Second, environmental sustainability benefits mediate the effect

Table 6. Results of the structural model.

Paths and Correlations	Oyster mushrooms			Meat substitute			Fruits		
	B	β	p	B	β	p	B	β	p
GCV ← ESB	.575	.507	.000	.685	.600	.000	.645	.548	.000
GCV ← SSB	.553	.484	.000	.604	.522	.000	.685	.556	.000
GCV ← PSP	.059	.053	.169	-.042	-.037	.377	.057	.047	.170
ESB ← PSP	.743	.754	.000	.713	.716	.000	.933	.867	.000
SSB ← PSP	-.018	-.018	.801	.128	.130	.035	-.045	-.046	.471
PSP ← BSP	.852	.842	.000	.857	.754	.000	.751	.701	.000
ESB ↔ SSB	1.266	.817	.000	.633	.715	.000	.995	.819	.000

Note. Controls: age and gender. Fit indices measurement model: normed $\chi^2 = 3.457$ (df = 420), $p = .00$; CFI = .96; TLI = .95; NFI = .94; SRMR = .03; RMSEA = .04.

Table 7. Test of environmental sustainability benefits as mediator.

	Oyster mushrooms			Meat substitute			Fruits		
	B	95% CI	p	B	95% CI	p	B	95% CI	p
Indirect effect via environmental sustainability benefits									
GCV ← PSP	.427	.288; .585	.000	.488	.352; .649	.000	.602	.470; .750	.000
Indirect effect via social sustainability benefits									
GCV ← PSP	-.010	-.125; .122	.916	.077	-.019; .185	.108	-.031	-.125; .072	.544

of green consumption values on a product’s overall sustainability perception. Our study provides initial evidence that this mediation relationship may not hold for social sustainability benefits. Third, increased product sustainability perceptions positively influence brand sustainability perceptions as well.

While, in the current context, means–end chain theory emphasizes the formation of a sustainability perceptions by linking product attributes to more abstract values, the ELM considers the varying levels of information processing. This study indicates that consumers’ formation of sustainability perceptions follows a hierarchical structure (Huber et al., 2004; Mothersbaugh et al., 2020; Gutman, 1982) in which in-depth processing of sustainability-related information is enhanced through thematic involvement (Petty & Cacioppo, 1986; Petty et al., 1983). Our study suggests that product sustainability benefits may play a significantly stronger role in judgements of overall product and brand sustainability for consumers who hold stronger green consumption values (White et al., 2019; Meise et al., 2014; Shao, 2016). Green con-

sumers appear to more thoroughly process sustainable product information, and therefore, tend to recognize a products’ sustainability benefits more strongly. Based on this, they seem to form a perceptual chain linking environmental sustainability benefits to the overall sustainability perception of the product. Thus, we not only confirm previous findings on the importance of presenting product sustainability benefits (Dorce et al., 2021; Meise et al., 2014), but also extend them by providing initial evidence of the role that green consumption values may play in terms of consumers’ information processing and their impact on the formation of product sustainability perceptions. In this sense, it seems that people who see the world through “green-tinted glasses” can potentially be supported in their value-related consumption behavior by firms providing relatively detailed sustainability information and highlighting product sustainability benefits.

However, in this regard, our results indicate that perceived environmental benefits may have a significant positive impact, while social benefits may not. Given a more natural alignment of environmental benefits with

green consumption values, many consumers' understanding of sustainability may be more environmental than social in nature (Sander et al., 2021). This may reflect the global development of sustainable development. The environmental pillar of sustainability has been part of the discourse since at least the first UN Earth Summit focusing on preventing climate change in the 1970s (United Nations, 2007). Over the time, a strong awareness of the environmental dimension of sustainability has grown among consumers (Sander et al., 2021; Haws et al., 2014).

Nonetheless, it is interesting to note that green consumption values may also have a halo effect on the perceived social sustainability benefits of a product. This could be due to a growing awareness that sustainability consists of several dimensions, and the joint overarching goal of both dimensions is to preserve nature and society for the future (Brundtland, 1987; Elkington, 1997). Accordingly, it would make sense to invest more in consumer education on the social pillar of sustainability to strengthen the influence of social benefits on product and brand sustainability perceptions (Franco & Cicatiello, 2019). In the consumer sample for the meat substitutes in our study, we observed this positive effect. Although we can only speculate about the reasons for this, it is conceivable that consumers of meat substitutes are among those who have already been more involved with the topic of sustainability and may therefore be sustainability forerunners (Siegrist & Hartmann, 2019). Thus, a more holistic understanding and integration of social sustainability benefits into the overall sustainability perception are reasonable among this group. In this respect, we contribute to research by using a broader concept of sustainability that not only refers to environmental sustainability but also includes the social dimension. Prior research often treats multiple sustainability-related aspects as "sustainable" without including a finer-grained analysis of the differential impacts of the environmental and social dimensions (Luchs & Miller, 2015). We take a new perspective and add to consumer research on more comprehensive understandings of sustainability by finding differential impacts of perceived environmental and social sustainability benefits.

In addition, the study revealed a positive effect of the increased sustainability perceptions of a product on the sustainability perceptions of the brand. Our findings therefore suggest that the deeper processing of product sustainability benefits by green consumers which then leads to an increased product sustainability perception translates into higher brand sustainability perceptions. Brands that offer information details on the sustainable features of their products may also build stronger sustainable brand reputations among green consumers (Golob et al., 2022).

6.1. Practical Implications

Because the food system has a critical role to play in reducing greenhouse gas emissions, improving managerial understanding of the influence of green consumption values on sustainability perceptions is clearly important (Crippa et al., 2021). Sustainable development in this sector largely depends on the commercial success of sustainable products. Even if consumers are increasingly interested in sustainable products, they have to recognize them as such in order to make more sustainable product choices. Our findings offer implications for all food marketers and other practitioners responsible for providing information about sustainable (food) products. In particular, we provide initial evidence that consumers who hold stronger green values may process product sustainability information more deeply and more clearly recognize product sustainability benefits based on this process, increasing overall perceptions of product and brand sustainability.

Food marketers can support this process by more effectively targeting green consumers and providing clear product sustainability benefit information in their marketing communications so that these consumers can easily understand the environmental and social sustainability benefits a product delivers. In addition, at least implicitly, our results indicate that merely communicating that a product is sustainable without providing evidence in the form of benefits may not be sufficient. Given that our survey product sustainability benefits were all very concrete (e.g., the reduction of emissions and energy use in the production process or the environmentally friendly sourcing of raw materials), simply labeling a product as sustainable without further expla-

nation may not be sufficient.

Therefore, our results encourage practitioners to take opportunities to communicate and outline the sustainability benefits of their products to green consumers in some detail. This adds to the growing empirical evidence that providing consumers with information is important for facilitating the comprehension of sustainability efforts, reducing greenwashing perceptions, and positively influencing other consumer responses (Atkinson & Rosenthal, 2014; Chen & Chang, 2013). Providing sustainability details that green consumers use to shape their sustainability perceptions can also be valuable in that perception changes triggered via the central pathway are more stable and have longer-term effects on consumer responses (Cialdini et al., 1981).

In light of our findings, in-store information on environmental sustainability seems likely to be particularly helpful in recalling cognitive links between green consumption values and value-aligned benefits during the purchase phase. In addition, the use of social media could be leveraged in terms of consumer education on social sustainability. Consumers may be under less time pressure while using social media than in a shopping situation and can consequently absorb messages on the meaning of social sustainability in the food sector more effectively. In this way, practitioners can support the predisposition of consumers with green consumption values which may, in turn, increase the probability that perceived social sustainability benefits translate into improved overall product and brand sustainability perceptions.

7. Limitations and Future Directions for Research

Finally, our study is not free of limitations. First, we combined elements of two well-established theoretical approaches and provided correlational insights. Although having a study based on real-world business cases and large consumer samples are strengths, this approach does not employ an experimental design that would have been able to test the theoretical assumptions in a more rigorous way. In an experiment, we could have varied the available pieces of information

(e.g., concrete sustainability benefits in comparison to more abstract product sustainability information) or the applied selling arguments typically used in food marketing campaigns. However, the insights from our correlational approach provide starting points for a variety of experimental investigations in future research.

Second, our data were collected in an online survey that presented the product without providing information about alternative and more conventionally produced foods, as would be the case in a typical grocery shopping trip. However, as increasing numbers of consumers order food online and buy it from direct marketers, this limitation may be less important than in the past. Nonetheless, the impact of perceived sustainability benefits compared to conventional counterparts should be investigated by future studies. By presenting sustainable products alongside conventional equivalents, the benchmark for perceived sustainability benefits could be altered and the mechanism influenced as a result (Van Herpen & Bosmans, 2018).

In addition to these concerns, identifying optimal forms for sustainability benefit information presentation remains an important avenue for future research. In our study, participants were given brief text descriptions of the respective value chains for the products. In a real shopping context, this information would have to be presented differently, that is, in a format which is more common in the marketplace. Future research in connection with sustainability benefits could, for example, vary the presentation format, information specificity, and/or the amount of information (Turunen & Halme, 2021; Atkinson & Rosenthal, 2014).

Furthermore, non-food products may benefit from providing sustainability benefit information. Also, presenting sustainability benefits through simpler cues could potentially appeal to less green-minded consumer groups. Thus, future research should shed light on how sustainability benefits can be communicated to people with lower green consumption values who do not deeply process information details (Borgstede et al., 2014; Schuhwerk & Lefkoff-Hagius, 1995; Petty et al., 1983).

Funding statement

This work was supported by the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 101000852. The information and views set out in this article are those of the authors and do not necessarily reflect the official opinion of the European Union. The latter was neither involved in the study design, and in the collection, analysis, and interpretation of the data, nor in the writing of the paper or the decision to submit it for publication. The authors wish to thank the cooperating value chain holders for their fruitful collaboration.

Conflict of interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

ORCID

Melina Burkert

 | <https://orcid.org/0000-0003-0286-3478>

Verena Hüttl-Maack

 | <https://orcid.org/0000-0003-4052-0409>

José María Gil

 | <https://orcid.org/0000-0003-3313-9052>

Djamel Rahmani

 | <https://orcid.org/0000-0002-7123-5232>

Cite as

Burkert, M., Hüttl-Maack, V., Gil, J.M., & Rahmani, D. (2023). The Influence of Green Consumption Values on How Consumers Form Overall Sustainability Perceptions of Food Products and Brands. *Journal of Sustainable Marketing*, 4(1), 44-62. <https://doi.org/10.51300/JSM-2023-103>

References

- Anderson, J.C., & Gerbing, D.W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423. <https://doi.org/10.1037/0033-2909.103.3.411>
- Atkinson, L., & Rosenthal, S. (2014). Signaling the green sell: The influence of eco-label source, argument specificity, and product involvement on consumer trust. *Journal of Advertising*, 43(1), 33-45. <https://doi.org/10.1080/00913367.2013.834803>
- Baalbaki, S., & Guzmán, F. (2016). A consumer-perceived consumer-based brand equity scale. *Journal of Brand Management*, 23(3), 229-215. <https://doi.org/10.1057/bm.2016.11>
- Bailey, A.A., Mishra, A.S., & Tiarniyu, M.F. (2018). Application of GREEN scale to understanding US consumer response to green marketing communications. *Psychology & Marketing*, 35(11), 863-875. <https://doi.org/10.1002/mar.21140>
- Barbarossa, C., & De Pelsmacker, P. (2016). Positive and negative antecedents of purchasing eco-friendly products: A comparison between green and non-green consumers. *Journal of Business Ethics*, 134(2), 229-247. <https://doi.org/10.1007/s10551-014-2425-z>
- Becker-Olsen, K.L., Cudmore, B.A., & Hill, R.P. (2006). The impact of perceived corporate social responsibility on consumer behavior. *Journal of Business Research*, 59(1), 46-53. <https://doi.org/10.1016/j.jbusres.2005.01.001>
- Bentler, P.M., & Bonett, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88(3), 588-606. <https://doi.org/10.1037/0033-2909.88.3.588>
- Berger, J., Draganska, M., & Simonson, I. (2007). The influence of product variety on brand perception and choice. *Marketing Science*, 26(4), 460-472. <https://doi.org/10.1287/mksc.1060.0253>
- Borgstede, C., Andersson, M., & Hansla, A. (2014). Value-congruent information processing: The role of issue involvement and argument strength. *Basic and Applied Social Psychology*, 36(6), 461-477. <https://doi.org/10.1080/01973533.2014.958226>
- Brown, T.J., & Dacin, P.A. (1997). The company and the product: Corporate associations and consumer product responses. *Journal of Marketing*, 61(1), 68-84. <https://doi.org/10.1177/002224299706100106>
- Brundtland, G.H. (1987). *Our common future: The world commission on environment and development*. Oxford University Press.
- Brunso, K., Scholderer, J., & Grunert, K.G. (2004). Closing the gap between values and behavior—a means-end theory of lifestyle. *Journal of Business Research*, 57(6), 665-670. [https://doi.org/10.1016/S0148-2963\(02\)00310-7](https://doi.org/10.1016/S0148-2963(02)00310-7)
- Chen, Y.S., & Chang, C.H. (2013). Greenwash and green trust: The mediation effects of green consumer confusion and green perceived risk. *Journal of Business Ethics*, 114(3), 489-500. <https://doi.org/10.1007/s10551-012-1360-0>
- Cialdini, R.B., Petty, R.E., & Cacioppo, J.T. (1981). Attitude and attitude change. *Annual Review of Psychology*, 32, 357-404. <https://doi.org/10.1146/annurev.ps.32.020181.002041>

- Crippa, M., Solazzo, E., Guizzardi, D., Monforti-Ferrario, F., Tubiello, F.N., & Leip, A. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*, 2(3), 198-209. <https://doi.org/10.1038/s43016-021-00225-9>
- Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P., & Kaiser, S. (2012). Guidelines for choosing between multi-item and single-item scales for construct measurement: a predictive validity perspective. *Journal of the Academy of Marketing Science*, 40, 434-449. <https://doi.org/10.1007/s11747-011-0300-3>
- Dorce, L.C., Silva, M.C.D., Mauad, J.R.C., Domingues, C.H.F., De, & Borges, J.A.R. (2021). Extending the theory of planned behavior to understand consumer purchase behavior for organic vegetables in Brazil: The role of perceived health benefits, perceived sustainability benefits and perceived price. *Food Quality and Preference*, 91, 104191. <https://doi.org/10.1016/j.foodqual.2021.104191>
- Elkington, J. (1997). *Cannibals with forks. The triple bottom line of 21st century business*. Capstone Publishing Limited.
- Fischer, D., Reinermann, J.L., Mandujano, G.G., Desroches, C.T., Diddi, S., & Vergragt, P.J. (2021). Sustainable consumption communication: A review of an emerging field of research. *Journal of Cleaner Production*, 300, 126880. <https://doi.org/10.1016/j.jclepro.2021.126880>
- Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. <https://doi.org/10.1177/002224378101800104>
- Franco, S., & Cicatiello, C. (2019). The role of food marketing in increasing awareness of food security and sustainability: Food sustainability branding. In P. Ferranti, E. Berry, & A. Jock (Eds.), *Encyclopedia of Food Security and Sustainability* (pp. 27-31). Elsevier.
- Fuller, C., Simmering, M.J., Atinc, G., Atinc, Y., & Babin, B.J. (2016). Common methods variance detection in business research. *Journal of Business Research*, 69(8), 3192-3198. <https://doi.org/10.1016/j.jbusres.2015.12.008>
- Gardner, M.P. (1983). Advertising effects on attributes recalled and criteria used for brand evaluations. *Journal of Consumer Research*, 10(3), 310-318. <https://doi.org/10.1086/208970>
- Gershoff, A.D., & Frels, J.K. (2015). What makes it green? The role of centrality of green attributes in evaluations of the greenness of products. *Journal of Marketing*, 79(1), 97-110. <https://doi.org/10.1509/jm.13.0303>
- Golob, U., Burghausen, M., Kernstock, J., & Davies, M.A.P. (2022). Brand management and sustainability: exploring potential for the transformative power of brands. *Journal of Brand Management*, 29(6), 513-519. <https://doi.org/10.1057/s41262-022-00293-7>
- Grunert, K.G., Hieke, S., & Wills, J. (2014). Sustainability labels on food products: Consumer motivation, understanding and use. *Food Policy*, 44, 177-189. <https://doi.org/10.1016/j.foodpol.2013.12.001>
- Gurel-Atay, E., Kahle, L.R., & Minton, E.A. (2017). Sustainability and consumer psychology. *Routledge International Handbook of Consumer Psychology*, (pp. 505-523).
- Gutman, J. (1982). A Means-End Chain Model Based on Consumer Categorization Processes. *Journal of Marketing*, 46(2), 60-72. <https://doi.org/10.1177/002224298204600207>
- Haws, K.L., Winterich, K.P., & Naylor, R.W. (2014). Seeing the world through GREEN-tinted glasses: Green consumption values and responses to environmentally friendly products. *Journal of Consumer Psychology*, 24(3), 336-354. <https://doi.org/10.1016/j.jcps.2013.11.002>
- Hoogland, C.T., Boer, J., De, & Boersema, J.J. (2007). Food and sustainability: Do consumers recognize, understand and value on-package information on production standards? *Appetite*, 49(1), 47-57. <https://doi.org/10.1016/j.appet.2006.11.009>
- Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55. <https://doi.org/10.1080/10705519909540118>
- Huber, F., Beckmann, S.C., & Herrmann, A. (2004). Means-end analysis: does the affective state influence information processing style? *Psychology and Marketing*, 21(9), 715-737. <https://doi.org/10.1002/mar.20026>, Retrieved from <https://doi.org/10.1002/mar.20026>
- Lagerkvist, C.J., Edenbrandt, A.K., Bolos, L.A., & Nayga, R.M. (2023). Consumer acceptance of aesthetically imperfect vegetables - The role of information framing and personal values: Evidence from the United States. *Food Quality and Preference*, 104, 104737. <https://doi.org/10.1016/j.foodqual.2022.104737>
- Lazzarini, G.A., Visschers, V.H., & Siegrist, M. (2017). Our own country is best: Factors influencing consumers' sustainability perceptions of plant-based foods. *Food Quality and Preference*, 60, 165-177. <https://doi.org/10.1016/j.foodqual.2017.04.008>
- Leonidou, C.N., & Skarmas, D. (2017). Gray shades of green: Causes and consequences of green skepticism. *Journal of Business Ethics*, 144(2), 401-415. <https://doi.org/10.1007/s10551-015-2829-4>
- Luchs, M.G., & Miller, R.A. (2015). Consumer responsibility for sustainable consumption. In L. A. R. J. Thøgersen (Ed.), *Handbook of research on sustainable consumption*

- (pp. 254-266). Edward Elgar Publishing.
- Mackinnon, D.P. (2017). *Introduction to statistical mediation analysis. Multivariate applications series*. New York, NY, London: Routledge.
- McAlexander, J.H., Schouten, J.W., & Koenig, H.F. (2002). Building Brand Community. *Journal of Marketing*, 66(1), 38-54. <https://doi.org/10.1509/jmkg.66.1.38.18451>
- Meise, J.N., Rudolph, T., Kenning, P., & Phillips, D.M. (2014). Feed them facts: Value perceptions and consumer use of sustainability-related product information. *Journal of Retailing and Consumer Services*, 21(4), 510-519. <https://doi.org/10.1016/j.jretconser.2014.03.013>
- Mothersbaugh, D.L., Hawkins, I., & Kleiser, S.B. (2020). *Consumer behavior: Building marketing strategy* McGraw-Hill Education.
- Öberseder, M., Schlegelmilch, B.B., Murphy, P.E., & Gruber, V. (2014). Consumers' perceptions of corporate social responsibility: Scale development and validation. *Journal of Business Ethics*, 124(1), 101-115. <https://doi.org/10.1007/s10551-013-1787-y>
- Petty, R.E., & Cacioppo, J.T. (1986). *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*. New York: Springer.
- Petty, R.E., Cacioppo, J.T., & Schumann, D. (1983). Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *Journal of Consumer Research*, 10(2), 135-146. <https://doi.org/10.1086/208954>
- Podsakoff, P.M., Mackenzie, S.B., Lee, J.Y., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Sánchez-Chaparro, T., Soler-Vicén, M.A., & Gómez-Frias, V. (2022). Be good and look good: Communicating the triple bottom line through corporate websites. *Journal of Business Research*, 144, 136-145. <https://doi.org/10.1016/j.jbusres.2022.01.089>
- Sander, F., Föhl, U., Walter, N., & Demmer, V. (2021). Green or social? An analysis of environmental and social sustainability advertising and its impact on brand personality, credibility and attitude. *Journal of Brand Management*, 28(4), 429-445. <https://doi.org/10.1057/s41262-021-00236-8>
- Schuhwerk, M.E., & Lefkoff-Hagius, R. (1995). Green or non-green? Does type of appeal matter when advertising a green product. *Journal of Advertising*, 24(2), 45-54. <https://doi.org/10.1080/00913367.1995.10673475>
- Shao, J. (2016). Are present sustainability assessment approaches capable of promoting sustainable consumption? A cross-section review on information transferring approaches. *Sustainable Production and Consumption. Sustainable Production and Consumption*, 7, 79-93. <https://doi.org/10.1016/j.spc.2016.05.001>
- Siegrist, M., & Hartmann, C. (2019). Impact of sustainability perception on consumption of organic meat and meat substitutes. *Appetite*, 132, 196-202. <https://doi.org/10.1016/j.appet.2018.09.016>
- Summers, C.A., Smith, R.W., & Reczek, R.W. (2016). An audience of one: Behaviorally targeted ads as implied social labels. *Journal of Consumer Research*, 43(1), 156-178. <https://doi.org/10.1093/jcr/ucw012>
- Turunen, L.L.M., & Halme, M. (2021). Communicating actionable sustainability information to consumers: The Shades of Green instrument for fashion. *Journal of Cleaner Production*, 297, 126605. <https://doi.org/10.1016/j.jclepro.2021.126605>
- United Nations (2007). From Stockholm to Kyoto: A brief history of climate change. Retrieved from <https://www.un.org/en/chronicle/article/stockholm-kyoto-brief-history-climate-change>
- Van Herpen, E., & Bosmans, A. (2018). Arranging the assortment to arouse choice: Effects of goal-relevant assortment organization on food choice and variety perceptions. *Food Quality and Preference*, 64, 192-204. <https://doi.org/10.1016/j.foodqual.2017.09.007>
- Verain, M.C., Snoek, H.M., Onwezen, M.C., Reinders, M.J., & Bouwman, E.P. (2021). Sustainable food choice motives: The development and cross-country validation of the Sustainable Food Choice Questionnaire (SUS-FCQ). *Food Quality and Preference*, 93. <https://doi.org/10.1016/j.foodqual.2021.104267>
- Verplanken, B., & Holland, R.W. (2002). Motivated decision making: Effects of activation and self-centrality of values on choices and behavior. *Journal of Personality and Social Psychology*, 82(3), 434-447. <https://doi.org/10.1037/0022-3514.82.3.434>
- Wheaton, B., Muthén, B., Alwin, D.F., & Summers, G.F. (1977). Assessing reliability and stability in panel models. *Sociological Methodology*, 8(1), 84-136. <https://doi.org/10.2307/270754>
- White, K., Habib, R., & Hardisty, D.J. (2019). How to shift consumer behaviors to be more sustainable: A literature review and guiding framework. *Journal of Marketing*, 83(3), 22-49. <https://doi.org/10.1177/0022242919825649>
- Zhao, X., Lynch, J.G., & Chen, Q. (2010). Reconsidering Baron and Kenny: myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197-206. <https://doi.org/10.1086/651257>

LUMINOUS INSIGHTS

© 2023 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share – copy and redistribute the material in any medium or format.

Adapt – remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution – You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions – You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

