



## Research report

## Sustainable food consumption. Product choice or curtailment? ☆

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## ABSTRACT

Food consumption is an important factor in shaping the sustainability of our food supply. The present paper empirically explores different types of sustainable food behaviors. A distinction between sustainable product choices and curtailment behavior has been investigated empirically and predictors of the two types of behavior have been identified. Respondents were classified into four segments based on their sustainable food behaviors: unsustainers, curtailers, product-oriented consumers, and sustainers. Significant differences between the segments were found with regard to food choice motives, personal and social norms, food involvement, subjective knowledge on sustainable food, ability to judge how sustainably a product has been produced and socio-demographics. It is concluded that distinguishing between behavioral strategies toward sustainable food consumption is important as consumer segments can be identified that differ both in their *level* of sustainable food consumption and in the *type* of behavior they employ.

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## Introduction

The modern food system faces many sustainability challenges. The environmental, social and economic consequences of food production and consumption are important issues in developed countries (Reisch, Eberle, & Lorek, 2013; Vinnari & Tapio, 2012). Consumers can significantly improve the sustainability of their food consumption, for example by consuming organic products and reducing meat consumption (Jungbluth, Tietje, & Scholz, 2000). Improvements can be achieved in several ways and should consider both sustainability of production and the quantity consumed (Hoogland, de Boer, & Boersema, 2005). This paper's focus is on the demand side of the food market. From this consumer perspective, two broad behavior strategies toward sustainable food consumption can be distinguished: sustainable product choices concerning the way the product is produced (e.g., organic, free range or Fair Trade products), and sustainable dietary patterns concerning dietary composition and consumption curtailment (reduced quantity) within product categories (e.g., little meat consumption). The issue of how these behavioral strategies could be understood and should be promoted and applied is an important though mainly unexplored research topic in the field of sustainable food consumption. This study explicitly includes both strategies and explores differences in their

determinants. In general, consumers are more reluctant to (partly) eliminate meat from their meals as compared with consuming other (more sustainable) types of meat (Vanhonacker, van Loo, Gellynck, & Verbeke, 2013). However, consumers may differ in the strategies that appeal to them most and fit them best. Therefore, the present study not only aims to empirically distinguish between behavioral strategies but also to explore which consumer segments can be identified based on the performance of these behavioral strategies.

## Sustainable product choices

Since the beginning of this century, a stream of (marketing) research has originated in which attitudes toward and consumption of sustainably produced food products are studied (e.g. Annunziata, Ianuario, & Pascale, 2011; Bezençon & Blili, 2011; Kareklas, Carlson, & Muehling, 2014). Specifically, consumer choice of organic products has been widely investigated (e.g. Lockie, Lyons, Lawrence, & Grice, 2004). Many determinants of sustainable product choices can be found in the food literature, including positive attitudes toward sustainable food, social and personal norms, knowledge on sustainability and food, and involvement with (sustainable) food (Aertsens, Verbeke, Mondelaers, & van Huylenbroeck, 2009; Arvola et al., 2008; Bezençon & Blili, 2011; de Boer, Hoogland, & Boersema, 2007; Dowd & Burke, 2013; Nurse Rainbolt, Onozaka, & McFadden, 2012; Tanner & Kast, 2003; Toma, McVittie, Hubbard, & Stotta, 2011; Vermeir & Verbeke, 2006). A well-established behavioral theory that has often been applied in food studies is the Theory of Planned Behavior (TPB), including the concepts of attitude, social norms and perceived behavioral control (Ajzen, 1991). Several studies show the

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predictive validity of the TPB for sustainable food choices (e.g. Dowd & Burke, 2013; Robinson & Smith, 2002). In addition, the Norm Activation model (Schwartz, 1977), including the concept of personal norms, has been related to sustainable consumer behavior (de Groot & Steg, 2009; Onwezen, Antonides, & Bartels, 2013).

The inclusion of food choice motives is of added value in explaining sustainable food choices beyond the theories mentioned above (Dowd & Burke, 2013; Toma et al., 2011). Health motives, environmental motives, naturalness and taste all contribute to the purchase of sustainable products, whereas prices, perceived time barriers, unawareness of the environmental impact of food and unavailability might be barriers to purchasing sustainable foods (Lea & Worsley, 2005; Mäkinen & Vainio, 2014; Tanner & Kast, 2003; Tobler, Visschers, & Siegrist, 2011; Vanhonacker & Verbeke, 2009).

Finally, research on the relation between socio-demographic factors and organic food purchases shows that women seem more likely to purchase organic food compared to men (Aertsens et al., 2009; Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007). Research on other socio-demographic characteristics shows mixed results (Aertsens et al., 2009; Tanner & Kast, 2003; Toma et al., 2011).

### *Sustainable dietary patterns*

The purchase of sustainably produced products is important but insufficient and should not be the only way toward more sustainable food consumption (Baroni, Cenci, Tettamanti, & Berati, 2007; Garnett, 2011). Therefore, we discuss a second relevant stream of literature, concerning the sustainability impact of dietary composition. Curtailment of consumption within food categories that cause a high environmental burden is an important pathway to reduce the environmental impact of one's diet (Foresight, 2011; Garnett, 2011; Jungbluth et al., 2000). Key in this strategy is that products in unsustainable product categories are substituted by products in *other* product categories that have a lower sustainability impact (or not substituted at all, leading to a reduction in total food intake). Especially animal-based products (meat and dairy) are resource-intensive and therefore from a sustainability perspective a broad consensus exists about the benefits of less animal-based and more plant-based diets (Baroni et al., 2007; Garnett, 2011; Gezondheidsraad, 2011; Pimentel & Pimentel, 2003; Tilman & Clark, 2014; Tukker & Jansen, 2006; Tukker et al., 2011; Westhoek et al., 2011).

The (non)consumption of meat takes a special position in food debates and receives growing attention in contemporary literature (e.g. Dagevos & Voordouw, 2013; de Boer, Schösler, & Aiking, 2014; Hoek et al., 2011; Rothgerber, 2014; Ruby, 2012; Verain, Dagevos, & Antonides, 2015). Meat holds a central position in western diets, is associated with status and masculinity, and stands on top of the food hierarchy (Ruby & Heine, 2011; Twigg, 1983), but is also related to restrictions imposed by religion, health issues, environmental burden and animal welfare issues (Fox & Ward, 2008). The stream of literature on meat curtailment started from a health perspective (e.g. Allen & Baines, 2002), but the focus has more and more shifted toward sustainability gains. Reduction of meat consumption is one of the most important recommendations toward more sustainable food consumption (Gezondheidsraad, 2011; Jungbluth et al., 2000).

Meat curtailment can take several forms. One way to curtail meat consumption is by decreasing meat portion size, another option is to reduce the frequency of meat eating, by consuming meatless meals several times a week (see also de Boer et al., 2014; Verain, Dagevos, & Antonides, 2015). An extreme form of meat curtailment is vegetarianism. When meat consumption is curtailed, meat can be substituted by other products that can be either animal based (e.g. fish, cheese) or plant based (e.g. lentils, "veggie" burger).

Determinants of meat avoidance include attitudes, norms, perceived behavioral control and habits (Povey, Wellens, & Conner, 2001; Zur & Klöckner, 2014). Moreover, food involvement is important in meat curtailment (de Boer et al., 2007).

Motives that play a role in meat avoidance are related to health, moral and ethical beliefs, concerns about animal welfare, environmental impact, sensory aspects, religion, and aspirations to belong to a reference group (de Backer & Hudders, 2015; Fox & Ward, 2008; Hoffman, Stallings, Bessinger, & Brooks, 2013; Janda & Trocchia, 2001; Lea & Worsley, 2001; Ruby, 2012; Zur & Klöckner, 2014). Whereas ethical motives are the main reason for complete meat avoidance, meat curtailment is mainly motivated by health concerns (Tobler et al., 2011). Appreciation of meat, lack of knowledge and familiarity with meat substitutes, lack of cooking skills, habits, and low awareness or disbelief of the environmental impact of meat consumption are barriers for meat curtailment (Lea & Worsley, 2001, 2008; Mäkinen & Vainio, 2014; Schösler, de Boer, & Boersema, 2012; Vanhonacker et al., 2013).

Regarding socio-demographic characteristics, gender is found to be a significant predictor of meat curtailment (de Boer et al., 2014; Hayley, Zinkiewicz, & Hardiman, 2015; Schösler et al., 2012; Tobler et al., 2011). In addition, higher education, higher socio-economic status, smaller household sizes and higher age levels appear related to a higher level of meat curtailment (de Boer et al., 2014; Hoek, Luning, Stafleu, & De Graaf, 2004; Schösler et al., 2012).

### *Consumer segmentation*

In studying sustainable behaviors, it is important to take the heterogeneity of consumers into consideration (e.g. Dolnicar & Grün, 2009). Consumers may differ in the importance they attach to sustainability, in the frequency with which they perform sustainable behaviors and in the type of sustainable behaviors they perform. Existing consumer segmentations are generally focused on one type of sustainable behavior, such as the purchase of organic foods, resulting in consumer segments that differ in the level of performance of that behavior (Verain et al., 2012). However, "green" consumers, who attach importance to sustainability and who behave sustainably are still not homogeneous as they may differ in the type of sustainable behavior they prefer (Hughner et al., 2007; Jansson, Marell, & Nordlund, 2009, 2010; Ozcaglar-Toulouse, Shiu, & Shaw, 2006; Verain et al., 2012). Hence, we expect that for some consumers it might be most appealing to purchase sustainable products, whereas other consumers may prefer curtailment (Abeliotis, Koniari, & Sardanou, 2010; Jansson et al., 2009). Identifying consumer segments with common needs and characteristics is essential for the positioning of sustainable products and for developing effective communication strategies around sustainable food consumption (e.g. de Jonge & van Trijp, 2013; Vanhonacker & Verbeke, 2009).

### *Present study*

Although sustainable product choices and curtailment behavior are two topical strategies toward sustainable food consumption that figure implicitly or explicitly in the literature (e.g. de Bakker & Dagevos, 2012; de Boer et al., 2007, 2014; Schösler et al., 2012; Vanhonacker et al., 2013; Vinnari & Tapio, 2012), empirical research on the distinction between these strategies is still lacking. Therefore, this research adds to the existing literature by empirically exploring the distinction between the two types of sustainable food behavior. Determinants of both types of behavior will be investigated to provide insights into consumer decision processes concerning sustainable food behavior. Three categories of determinants will be included in the analysis: socio-demographic variables (gender, age, education and income), psychosocial variables (social and personal norms, ability, subjective knowledge and food in-

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