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Research report

# Flemish consumer attitudes towards more sustainable food choices ☆

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ABSTRACT

Intensive agricultural practices and current western consumption patterns are associated with increased ecological pressure. One way to reduce the ecological impact could be a shift to more sustainable food choices. This study investigates consumer opinions towards a series of food choices with a lower ecological impact. The investigated food choices range from well-known meat substitutes to alternatives which are more radical or innovative and that require an adaptation of food habits and cultural patterns. Results are obtained through a survey among 221 Flemish respondents in Spring 2011. Many consumers underestimate the ecological impact of animal production. Well-known alternatives such as organic meat, moderation of meat consumption and sustainable fish are accepted, although willingness to pay is clearly lower than willingness to consume. Consumers are more reluctant to alternatives that (partly) ban or replace meat in the meal. Opportunities of introducing insects currently appear to be non-existent. Five consumer segments were identified based on self-evaluated ecological footprint and personal relevance of the ecological footprint. The segments were termed Conscious, Active, Unwilling, Ignorant and Uncertain. A profile in terms of demographics, attitudinal and behavioral characteristics is developed for each segments, and conclusions with respect to opportunities for sustainable food choices are discussed.



## Introduction

Along with the emerging societal significance of sustainability, the concept of ecological footprint has come to the forefront. Ecological footprint is defined as a measure of the load on nature imposed by a given population or individual. It is expressed in terms of hectares and represents the area of the Earth's surface necessary to sustain levels of resource consumption and waste discharge by that population or individual (Wackernagel & Rees, 1996). The average ecological footprint of a European consumer has been estimated at 4.72 global hectares per capita in 2007 (Global Footprint Network, 2011). Consumers in Belgium, which is the area of this study, have one of the largest footprints (7.11 global hectares/person) (Global Footprint Network, 2011). Food consumption in general and meat consumption in particular accounts for a significant proportion of the ecological footprint of individuals with a carnivorous diet, due to the strong contribution of agriculture and animal production to all greenhouse gas (GHG) emissions (EIPRO, 2006; FAO, 2006b).

Driven by the increasing world population, increasing incomes, urbanization and diversification of the diet in developing countries, global meat consumption is expected to increase (Food, 2006a). As such innovative technologies and increased efficiency of animal production alone will not be sufficient to solve the environmental problems related to the growing animal protein demand (Garnett, 2011). To maintain a sustainable environment, a better balance between meat consumption and livestock production's environmental impact will be essential, and a change in meat consumption will be inevitable to lessen food-related GHG emissions (Garnett, 2011; WWF, 2012).

This study investigates opportunities and bottlenecks of some alternative and more sustainable food choices in terms of consumer evaluation. In this study sustainable food choices refer to more ecological-friendly food choices. In order to acknowledge differences in society, a segmentation analysis is included. Segmentation research, independent of the method used, is designed to identify groups of objects with common characteristics, e.g. consumers with similar attitudes, motivations, eating habits or lifestyles. Consumers that are grouped together in a potential target segment are intended to be similar to each other, and dissimilar to consumers outside the segment (Pieniak, Verbeke, Olsen, Birch Hansen, & Brunsø, 2010). The most frequently used statistical method for segmentation of people in marketing research is cluster analysis (Beane & Ennis, 1987). Segmentation research allows a better understanding on how to make sustainable food choices more relevant to different consumers and how to better position sustainable food products in a competitive marketing environment. From this angle, distinct consumer profiles can be established which provide insights on how to target, communicate and convince these distinct groups to make more sustainable food choices.

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This study uses the different strategies for an improved sustainability of the meat consumption in terms of a reduced ecological footprint which have been suggested by de Bakker and Dagevos (2010). These include alternative meat products such as hybrid meat products (meat variants in which part of the meat is substituted by plant-based ingredients), meat types with lower environmental impact (e.g. chicken, and game), plant-based meat substitutes or replacements (foods containing proteins from plants such as soy and cereal protein, e.g. tofu, seitan, and vegetarian burger), sustainable farmed fish, organic meat, proteins from insects and a moderated meat consumption (less meat per meal). Consumption data on most of these alternatives are hardly available, mainly because the products have very small market shares or are practically non-existent on the European market at present (e.g. edible insects). The market share of organic meat in 2009 for example was estimated at 2% of all meat sales in Western Europe (Naspetti & Zanoli, 2012; Organic Monitor, 2010). For Belgium specifically, the market share of organic meat was even lower at 0.6% in 2011 (VLAM, 2012). Despite very small production, sales and consumer spending on organic meat are increasing across Europe (BioForum, 2010; Van Loo, Caputo, Nayga, Canavari, & Ricke, 2012).

To achieve a substantial impact, many consumers should adopt more sustainable food choices. From that perspective, alternatives should be attractive not only to vegetarian consumers but also to current meat consumers (Hoek, Luning, Weijzen, Engels, Kok, et al., 2011; Hoek, van Boekel, Voordouw, & Luning, 2011). This is a challenge and many barriers are present since not only are meat substitutes relatively new (Sadler, 2004) and expensive, they are also often perceived to be of lower product quality compared with meat, in particular with respect to sensory properties.

Recently several consumer studies have been published in relation to ecological food choice and consumption, including vegetarian diets and more sustainable food consumption (e.g. de Bakker & Dagevos, 2012; Hoek, Luning, et al., 2011; Hoek, van Boekel, et al., 2011; Ruby, 2012; Ruby & Heine, 2011; Schösler, de Boer, & Boersema, 2012; Tobler, Visschers, & Siegrist, 2011; Vermeir & Verbeke, 2008). This trend exemplifies the scientific acknowledgment of the ecological stress from current western (meat) consumption habits. It also underlines the importance of consumers who have to accept and buy these alternative products and who will determine the market success. Insights in consumers' opinions about ecological food choices and meat consumption alternatives are of paramount importance to better position these products in the market.

## Method

### *Study design and subjects*

Cross-sectional data were collected through a web-based survey in Flanders (the northern Dutch-speaking part of Belgium) during March and April 2011. The study used a convenience sampling procedure. Hence findings mainly apply within the characteristics of the sample, whereas generalization to the overall population remains speculative.

A valid sample of 221 participants was obtained (Table 1). The sample was biased to a higher share of females, a higher share of 18–30 year old people, higher educated people, participants with the main responsibility for food purchases and participants with a self-reported above average financial situation.

### *Questionnaire and scales*

The questionnaire consisted of three parts. The first part dealt with the concept 'ecological footprint'. The second part was related to more ecologically sustainable food choices. The third part involved personal characteristics, including demographics and meat consumption frequencies. First the concept 'ecological footprint' was introduced to the participants by providing them with the definition from Wackernagel and Rees (1996). Participants were probed for their awareness and concerns in relation to the concept and for their commitment to a variety of activities that contribute to an environmental-friendly behavior. With regard to awareness of the concept ecological footprint, participants could differentiate their response between 'I am fully aware of the concept', 'I heard of the concept but do not know its meaning', and 'I have never heard of the concept'. The two latter response categories were merged representing 'unaware of the concept ecological footprint'. They were further asked to self-evaluate their personal footprint on a five-point interval scale ranging from 'very small' (score 1) over 'all right' (score 3) to 'much too high' (score 5). Next, participants were presented with a list of industry sectors, among them livestock production. For each sector, they were asked to score the contribution to GHG emissions on a five-point interval scale that ranged from 'does not contribute at all' (score 1) to 'contributes very much' (score 5). Personal concerns about the ecological footprint were measured through two statements on which the participant could indicate his/her opinion on a five-point interval scale. The statements read '*To what extent are you concerned about issues like $CO_2$-emissions, global warming and ecological footprint?*', and '*To what extent do you think issues like $CO_2$-emissions, global warming and ecological footprint are overstated?*'. Finally, personal relevance (an indication of involvement with the issue) was measured through the question '*To what extent is your ecological footprint important in your consumer choices?*'. Response categories ranged from 'not important at all' (score 1) to 'very important' (score 5). In addition, participants were asked to report environmental-friendly behaviors.

The second part dealt with sustainable food consumption choices. Participants were informed about the actual contribution of animal production to $CO_2$-emissions. Following this information, they were asked how aware they were of the extent of this contribution, on a five-point scale ranging from 'totally unaware' (score 1) to 'totally aware' (score 5). Further questions probed for the

**Table 1**
Socio-demographic characteristics of the sample ($n$ = 221).

| Socio-demographic characteristic | % of total |
|---|---|
| *Gender* | |
| Male | 35.7 |
| Female | 64.3 |
| *Age group* | |
| 18–30 years | 36.2 |
| 31–45 years | 17.6 |
| 46–60 years | 31.2 |
| 60+ years | 14.9 |
| Mean (SD) | 41.3 (16.5) |
| *Educational level* | |
| No higher education | 22.7 |
| Higher education | 77.3 |
| *Financial situation of household* | |
| Difficult | 4.1 |
| Average | 31.1 |
| Well-off | 64.8 |
| *Living environment* | |
| Rural: town, village, countryside | 62.3 |
| Urban: metropolis, provincial city, urbanized city | 37.7 |
| *Responsibility for food purchases within household* | |
| Most responsibility within household | 53.9 |
| Equal responsibility between me and someone else | 20.1 |
| Someone else has higher responsibility | 26.0 |