

## Food for Thought about Environmental Values and Food Demand

Henseleit, M.<sup>1</sup>

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### Abstract

*It is a controversial discussion whether consumers are taking care of environmental issues when buying food. This question seems to be of significance to understand the demand for organic products, and thus many investigations have been made in this field. However, no strong relationship between attitudes and knowledge about environmental issues on the one hand and consumption behaviour on the other hand could be confirmed yet, and still there is a gap in thorough understanding of the demand for eco-friendly produced food. In this text it is discussed to what extent people are both willing and enabled to consider environmental footprints in their food choice by applying recent surveys of environmental preferences and food labels.*

### Introduction

Research into attitudes towards environmental concerns as well as investigations of the willingness to pay for environmental goods and services usually show a high level of awareness of environmental issues. In contrast to that, many investigations conclude that most consumers are taking environmental issues rarely into consideration when shopping for food, whereas only a minority<sup>2</sup> consider ethical factors regularly (Thøgersen 1999; Birner et al. 2001; Halkier 2001; Verbeke and Vermeir 2006; Codron et al. 2006 and many more). The majority of investigations on this subject are based on the demand for organic products. Usually social and psychological factors, and in particular peoples' attitudes and concerns, are focussed because they are deemed important, if not even the main factors for the choice of organic products (Lintott 1998; Weber 1999; Belz 2001; Rubik and Frankl 2005; Honkanen et al. 2006). In some studies environmental concern has been found to be a major determinant of buying organic food (for example, Brombacher and Hamm 1990; Van Dam 1991; Grunert 1993; Honkanen et al. 2006). Indeed, many studies, and in particular the more recent, come to the result that health concerns are more important than environmental values (e.g. Sirieix and Schaer 1999; Halkier 2001; Bruhn 2001; Codron et al. 2006; European Commission 2007; Nocella et al. 2007). Accordingly, the critical question remains, whether consumers are both willing and enabled to turn their expressed interest in environmental problems into actual

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<sup>1</sup> Institute for Agricultural Policy and Market Research, University of Giessen, Senckenbergstrasse 3, 35390 Giessen, Germany, E-Mail [Meike.Henseleit@agrar.uni-giessen.de](mailto:Meike.Henseleit@agrar.uni-giessen.de)

<sup>2</sup> However, the categorisation of consumers depending of stated or revealed environmental consciousness has to be regarded carefully as it is often based on the attachment of meanings on some variables. Thus it may be the same as the basis for the segmentation, so that the results become merely tautological (Torjusen et al. 2004, 32). Therefore, the categorisation is itself an interpretation and may be a useful basis for strategic marketing decisions, but it is not suitable for the explaining or understanding of the changing patterns of consumption in the longer term.

purchasing habits (Martin and Simintiras 1995; Weber 1999; Torjusen et al. 2004; Vermeir and Verbeke 2006).

## Materials and methods

Food production usually goes along with multiple impacts on the environment. In order to discuss the question, whether ecological side-effects could change the value of products in the view of consumers, preferences in the form of stated willingness to pay values for environmental goods are considered. It is also discussed how far consumers are enabled to regard environmental preferences easily when buying food.

The environmental impact of food production, processing and consumption can be described as a summation of influences on environmental goods and values like water, soil, air, climate, structure of landscape, genetic resources and non-renewable resources. In the following table willingness to pay values from selected representative environmental valuation studies are given. In order to ease the comparison, monetary values are converted into US \$ per household per year by applying the consumer price index (CPI) of 2000. Only the data for farm animal welfare is weekly.

**Tab. 1: WTP for environmental values**

Landscape	Species	Water, Soil, Air, Climate	Animal Welfare
Agricultural landscape: \$ 340 (Drake 1992, SE) \$ 100 (Tronstad 1993, NO) \$ 256 (Roschewitz 1999, CH) \$ 68 (Brink et al. 2000, various) \$ 46 (Moran et al. 2004, UK) \$ 46 (Bonnieux, Le Goffe 1997, FR) Open landscape: \$ 15 (Sirex 2004, FR) \$ 112 (Ollikainen et al. 2004, FI)	Preservation of endangered species: \$ 144 (Holm-Müller 1992, DE) \$ 106–209 (Hampicke 1991, DE) \$ 130 (Brink et al. 2000, various) Single species: \$ 5–126; Multiple species: \$ 18–194; Ecosystems: \$ 27–101 (Nunes et al. 2001, various). Enhanced biodiversity: \$ 14 (Travisi et al. 2004, various)	Groundwater Quality: \$ 65-1,341 (Boyle et al. 1994, US) \$ 209 (Brouwer et al. 1997) Nitrate free drinking water: Reduction of 50%: \$ 58-77; Additional complete reduction: \$ 0.1–10 (Crutchfield et al. 1997, US) Fresh water quality: \$ 97; Riverine quality: \$ 113 (Brouwer et al. 1997, various) Small improvement: \$ 13; Medium improvement: \$ 32; Large improvement: 48 US \$ (Bateman et al. 2006, UK) Soil conservation programme: \$ 18.5–34.5 (Colombo et al. 2006, ES) Air quality: Reduced - harmful substances: \$ 360 (Diener 1999, CA) - toxicity of vehicle emissions: \$ 112 (Bateman et al. 2002, UK) Address problems of climate change: \$ 252 (Curry et al. 2007, US)	Raising welfare standards of veal and hens: \$ 13.42 Ban on egg cages: \$ 1.60 Slaughtering pigs more humane: \$ 4.68 (Bennett et al. 2002, UK) Improvements for - laying hens: \$ 4.24; - dairy cows: \$ 4.15; - chickens: \$ 3.78; - pigs: \$ 3.02 (Burgess et al. 2003, UK) Price premium for animal friendly products: \$ 12.73 (Nocella et al. 2007, various)

Source: Own Compilation

Stated willingness to pay (WTP) often diverges highly within the same environmental amenities. Monetary values for the prohibition of negative environmental externalities and, respectively, for the supply of positive ones can be biased due to several reasons, like, for example, embedding and prior information. Differences in WTP values can be caused by survey methods and in particular by the payment vehicle, but also by the question format or by the way of sample selection. Accordingly, WTP answers can hardly be treated as absolute values in economic calculations. However, stated preferences can be intended to some extent for comparison purposes as well as an indication that people do hold significant values for such environmental goods (Bateman et al. 2002, 39).

## Results

Not surprisingly, people seem to be first of all willing to pay for the prevention of threats to vital resources like climate, water and air. Also farm animal welfare and the omission of chemicals in general are valued highly, as they may affect the quality and safety of food directly. However, issues which mainly provide non-use values in the view of consumers are of importance as well, likewise due to a desire to prevent rare goods from deletion. This motivation may be driven on the one hand by moral values (like, for example, the right to live for every creature) and on the other hand by risk aversion, which means that people are afraid about losing something forever.

Regarding WTP values for environmental goods and the basis of information on which consumers are choosing food products, there seems to be potential to affect the food market by applying sustainable production techniques combined with reliable product information. An alternative to do so would be to introduce more informative eco-labels in order to gain consumers' trust and to assure demand in the long run. Currently consumers buy organic food mainly because they think it is healthier. As long as there is no evidence, that organically produced food significantly provides higher health benefits, there remains the risk that simply the criterion 'organic' will lose its power as a sales argument. Therefore, it could be useful for certified organic products to provide more information about environmental impacts. This could provide an opportunity for suppliers to differentiate from competitors by applying technologies which are less harmful to climate, water and other environmental goods and which imply improved farm animal welfare.

## Discussion

An obvious way to emphasise comparatively low negative impacts of food products for the environment is product labelling. However, several important questions need to be considered in terms of eco-labelling. First of all, a necessary condition for the spread of moral environmental reasoning to buying decisions is that characteristics, which connect the purchase to environmental problems, become salient in the buying situation. This means, other characteristics of the purchase should not be too highly involving and thus not 'monopolize' the attention of the consumer as it is usually done by the price. Additionally, the individual should feel a high degree of concern for an environmental issue that is associated with the particular buying decision (see also Thøgersen 1999, 441). It is also important to consider the amount of information people can take into account when purchasing food. Usually consumers don't spend

much time for daily shopping, because food is a low-involvement good. Thus, only a limited number of product characteristics are crucial for the buying decision. Also the level of knowledge about environmental risks and issues is very different across people. Therefore, the kind of information given about environmental impacts and its way of presentation has to be elaborated carefully in order to convey benefits of sustainable food production and processing methods.

Finally, it appears to be important to anticipate the abuse of 'green' claims and misleading advertising, because consumers' confidence in environmental certificates still needs to be consolidated (Martin and Simintiras 1995, 17; Karstens and Belz 2006, 189). Hence, consumers often are distrustful if products labelled as 'organic' indeed are produced according to the rules of organic farming. Also the use of pictures and images on products and for promotion is quite often misleading. For example, many dairy products have lucky cows, green meadows and flowers on the package although the milk comes from industrialised farming systems without free range. Since these symbols stand for animal welfare, healthy nature and nice scenery, consumers don't get the right impression about the conditions of production.

## Conclusions

Labelling concerning ecologically sound production and processing methods is probably most effective when these characteristics are seen as an indicator of product quality. On the one hand, this can stimulate the demand, but on the other hand, intangible characteristics like a reduced application of pesticides and fertilisers can become experience attributes in this way, which means that expectations can be confirmed after purchase. Such an association can possibly raise potential barriers for increasing demand because consumers could reject their perhaps unrealistic expectations regarding, for example, better flavour or positive health effects of eco-friendly products after consumption. Thus, marketing experts should communicate eco-friendly characteristics with a maximum of transparency, but without creating unrealistic expectations.

Indeed it remains to be seen if the labelling of environmental impacts will have an influence not only on the product choice of ethical consumers, but also on the consumption behaviour of the mass market. Further research is necessary to understand consumers' conception of environmental sustainability, quality and healthiness. The effects of more transparency in terms of externalities of food production, as well as labelling strategies, have not been studied very well so far and thus more investigations are required

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