



# Sustainability and organic production: How information influences consumer's expectation and preference for yogurt



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## ABSTRACT

The purposes of this experimental study are to investigate consumers' attitude and general knowledge about sustainability; to evaluate how information about organic production may affect consumers' food acceptability and expectations; to establish whether and how much commitment to sustainability influences individuals' preferences for organic products. Results showed that consumers are aware of the sustainability concept, but they are not able to define it precisely thus indicating that sustainability is a widespread issue in individuals' mind. This was confirmed also by the lack of information perceived by respondents about sustainable products. When subjects were grouped according to their sustainability level, the majority of them (74%) were defined as "uncertain". A major difference was found between "sustainable" and "non-sustainable" individuals in the attitude, purchase intentions, and behaviors as regarding organic products. Sustainable subjects were more interested in and proactive for such products. This behavioral discrepancy is in line with the liking gap for organic products found between the two groups. Indeed, when organic and conventional yogurts were evaluated for liking in blind, expected and informed conditions, sustainable subjects had a higher expectation towards organic yogurt than non-sustainable individuals. Furthermore, non-sustainable subjects expressed lower expectations from organic samples than from conventional ones, whereas the opposite behavior was observed in Sustainable subjects. Only for sustainable and uncertain subjects, organic yogurts produced negative disconfirmation, which was associated with an incomplete assimilation effect. Hence, the information about yogurt's organic origin may affect people's expectations, and this influence is especially found in the case of respondents which are committed to sustainability or are uncertain about this issue as compared to non-sustainable individuals.

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## 1. Introduction

A great deal of interest in sustainability issues has been globally expressed in recent years. The academic interest for the topic has enormously increased, especially in the last decade: 400 journal articles about sustainability were issued in 2005, whereas in 2010 they became more than 1000. Also politics and institutions' interest is growing, as long as sustainability is a crucial issue for the economic growth and development: sustainability is by far a strategic goal in economic and social policies on an international ground (Bologna, 2005).

The term *sustainability* comes from the verb "to sustain", namely "to carry the weight", "to support", and it refers to the

capability to live within the carrying capacity of the system we belong to (Daly, 1996). According to the official definition provided in 1987 by The World Commission on Environment and Development (WCED), *sustainable development* is "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). Sustainability is now a positive concept in consumers' minds, but there are still some contradictory aspects to be pointed out. Sustainability is an overall issue involving institutional policies and companies' decisions, but also consumers' purchases and behaviors in various situations of everyday life; nevertheless, consumers show poor awareness of problems related to it, and it's difficult to find a unique and generally accepted definition of the concept. Furthermore, a widespread inconsistency between beliefs, opinions, values, and behaviors is noticed: consumers have developed behaviors and habits in contrast with their intentions, attitudes, and opinions (de Barcellos, Krystallis, Saab, Kugler, & Grunert, 2011; Vermeir & Verbeke, 2006).

Abbreviations: ACA scale, awareness concern and action scale; TPB, theory of planned behavior.

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Scientific literature directed little attention to consumer's perception of the sustainability concept as well as to the understanding of its influence on hedonic expectations.

Despite being one of the strongest food preference and consumption determinants, the hedonic dimension remains the most difficult aspect to assess objectively (Pagliarini, 2002). When approaching the crucial moment of a food product choice, consumers retrieve information stored in memory and coming from previous experiences with the same product or a similar one. This aspect is part of the decision-making process. After consumption, the sensory and hedonic properties of a chosen product, along with other variables such as the brand and the packaging labels, may result in changes in consumer expectations (Deliza & MacFie, 1996). A confirmation is generated if, at the moment of the choice/consumption, the product characteristics meet consumer's expectations. A mismatch between expected and actual product characteristics results in a disconfirmation, which can be either positive (when product characteristics are better than expected) or negative (when product characteristics are worse than expected) (Cardello & Sawyer, 1992). According to the selection/consumption/reselection model proposed by Deliza and MacFie (1996), a confirmation and a positive disconfirmation of the expectations will result in consumer's satisfaction followed by a repeated choice of the product with increased expectations for it, whereas negative disconfirmation will likely lead to dissatisfaction and product rejection with a consequent expectations decrease.

Consumer's expectation is often measured in terms of disparity degree between expected and perceived product performance (Anderson, 1973). Over the past decades, several works have been carried out in an attempt to investigate whether and how information about food products influences hedonic expectation. In most of these studies, consumers were given food samples and asked to answer questions about their liking degree under different information circumstances: the blind condition (*i.e.* consumers taste and judge the product without any kind of information); the expected condition (*i.e.* consumers do not taste the product and judge it only on the basis of a written or visual information); and the informed condition (*i.e.* consumers taste and judge the product after having read a written information and/or seen an image). This approach has been used to investigate the effect on consumer's product evaluation of (i) health and nutritional information (Saba et al., 2010), (ii) country of origin (Caporale & Monteleone, 2001; Caporale, Policastro, Carlucci, & Monteleone, 2006; Stefani, Romano, & Cavicchi, 2006), (iii) brand (Di Monaco, Cavella, Di Marzo, & Masi, 2004; Lange, Martin, Chabanet, Combris, & Issanchou, 2002); and (iv) price (Ares, Giménez, & Deliza, 2010). All these studies reported that quality perception can be affected by the expectations induced by the information. Different predictive models (*e.g.* assimilation and contrast) have been suggested in an attempt to reveal the effect of discrepancy between expectations and actual product performance on acceptability (Anderson, 1973). When expectations are disconfirmed, the assimilation model is generally applicable, which means that hedonic ratings move towards the expectations when information is provided.

Some studies have been undertaken about hedonic expectations and food sustainability using bread (Kihlberg, Johansson, Langsrud, & Risvik, 2005; Kihlberg & Risvik, 2007), cheese (Napolitano, Braghieri, Piasentier, Favotto, Naspetti & Zanolì, 2010a), meat (Napolitano, Braghieri, Piasentier, Favotto, Naspetti & Zanolì, 2010b), beer (Caporale & Monteleone, 2004), and pineapple (Poelman, Mojte, Lyon, & Sefa-Dedeh, 2008) as experimental products. In this context, the understanding of how and whether sustainability drives consumers' preferences is a crucial subject which needs to be systematically explored, especially in the food domain.

Based on the above considerations, this study is intended (i) to assess consumers' understanding and attitude towards sustainabil-

ity; (ii) to evaluate the influence of information about organic production on consumers' food acceptability and expectation; (iii) to establish whether and how much commitment to sustainability drives individuals' preference for organic food. As compared to previous studies in literature, our approach included the administration of a questionnaire devised to explore consumer's general knowledge, attitudes, beliefs and behaviors related to sustainability combined with the hedonic evaluation of a food product under different consumption situations. The respondents were grouped according to their sustainability level (namely their propensity and willingness to perform sustainable actions) using the answers provided to the questionnaire, which included several questions concerning sustainability (*e.g.* respect of the environment, enhancement of local production, promotion of clean and green energies), and food (*e.g.* enhancement of organic cultivation, contrasting GMO food, enhancement of free-preservatives food products). The same consumers were also involved in a hedonic test and were asked to express their liking degree for conventional and organic yogurt samples in blind, expected, and informed conditions. Among the several meanings of sustainability related to food, the concept of organic production was chosen as reference in this study. This choice is based on data showing increased organic food products purchases in the European market, corresponding to 8% in 2010. In Italy, this increase is especially prominent in organic yogurt purchases, with a percentage of 27.5% in 2010. For this reason, yogurt was chosen as experimental product in the present study.

## 2. Materials and methods

### 2.1. Subjects

One hundred and fifty-seven (100 females and 57 males) regular yogurt consumers aged between 20 and 42 ( $M = 23.6$ ;  $sd = 2.8$ ) were recruited among the students of the Faculty of Agronomy (Università degli Studi di Milano) and the Faculty of Communication, Public Relations and Advertising (Libera Università di Lingue e Comunicazione IULM). The subjects' recruitment was based on yogurt liking degree and consumption frequency. Only individuals who reported to like strawberry yogurt and to consume it more than once-twice a month were involved in the study.

### 2.2. Samples

Eight commercially available full-fat-milk, strawberry-flavored yogurts were used as experimental samples: three organic yogurts (Fattoria Scaldasole Srl, Como, Italy; Parmalat SpA, Parma, Italy; Esselunga SpA, Italy) and five conventional yogurts (Yomo-Granarolo SpA, Milano, Italy; Parmalat SpA, Parma, Italy; Latteria Sociale Merano, Merano, Italy; Müller Italia, Italy; Esselunga SpA, Italy). Samples were stored at 4 °C and served at room temperature during the tasting sessions. Yogurt samples were purchased in local supermarkets: for a given brand all samples were chosen from the same batch and across brand the difference in shelf-life was no more than few days. The strawberry-flavored yogurt was selected because it is the most popular yogurt in Italy and it is available in a large variability of brands both from conventional and organic production.

### 2.3. Procedure

#### 2.3.1. Consumer test

Participants were involved into two tasting sessions performed in two different days one week apart. Each session lasted about 30 min. The sessions were held during mid-morning and

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