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The green halo: Mechanisms and limits of the eco-label effect

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ABSTRACT

Consumers believe that "eco-labeled" products taste better, which, at least in part, may be an effect of the label. The purpose of the current series of experiments was to examine some mechanisms and limits of this eco-label effect. In Experiment 1, an eco-label effect of similar magnitude was found for taste ratings of both conventional and organic bananas. Experiment 2 showed eco-label effects for a wider range of judgmental dimensions (i.e., health, calories, vitamins/minerals, mental performance, and willingness to pay) and the effect was about the same in magnitude for judgments of grapes and raisins. Experiment 3, with water as the tasted product, found no eco-label effect on judgments of taste, calories and vitamins/minerals, but an effect on willingness to pay, judgments of health benefits and judgments of mental performance benefits. Experiments 2 and 3 also included questionnaires on social desirability traits, schizotypal traits and pro-environmental consumer traits. The last was the strongest predictor of the eco-label effect amongst the three. In all, the eco-label effect is a robust phenomenon, but depends on interactions between product type and judgmental dimension. Implications for several accounts of the effect are discussed.

1. Introduction

While some view the marketing of organic products as nothing but "green-washing" (Chen & Chang, 2012; Dahl, 2010)—the deceptive promotion of the perception that an organization's products and policy aims are indeed environmentally friendly—current evidence suggests that eco-friendly agriculture is an important step in the attempt to save our planet from the threats of environmental disaster (El-Hage Scialabba & Müller-Lidenlauf, 2010; Gattinger et al., 2012). For example, the conventional banana industry is one of the most noxious agricultural industries and involves large volumes of toxic pesticides, harming workers, wildlife and tropical environments in general (Henriques, Jeffers, Lacher, & Kendall, 1997; Wesseling, Ahlbom, Antich, Rodriguez, & Castro, 1996). The societal, political and environmental gains of a more eco-friendly and socially responsible food production are substantial. Against this background, an important scientific endeavor is to identify potential advantages of eco-friendly farming that may appeal to consumers and make eco-friendly products more attractive than conventional alternatives in the grocery stores.

The evidence in support for an advantage in eco-friendly products is mixed. Although some health benefits from organic food have been shown in fruit flies (Chhabara, Kolli, & Bauer, 2013), the general picture is that eco-friendly foods do not seem to be more nutritious than their conventional counterparts (Dangour et al., 2010; Smith-Spangler et al., 2012), with dairy products being a notable exception (Palupi, Jayanegara, Ploegera, & Kahl, 2012). One possible health benefit of eco-friendly food is reduced exposure to pesticides (Barański et al., 2014; Lu et al., 2006; Smith-Spangler et al., 2012), which consumers seem to be aware of (Williams & Hammitt, 2001), but whether eco-friendly food actually is safer to consume is still debatable (Curl, Fenske, & Elgethun, 2003; Magkos, Arvaniti, & Zampelas, 2006; Worthington, 2001). Another important quality dimension on which eco-friendly and conventional food appears to differ is taste. Consumers do say they prefer the taste of eco-friendly food over ordinary food products (Fillion & Arazi, 2002; Grankvist & Biel, 2001; Theuer, 2006), including organic bananas (Basker, 1992). Chemical analyses also indicate that organically produced bananas actually differ from conventional bananas. In particular, organic bananas contain less moisture, fructose and glucose and more sucrose (Forster, Rodriguez, & Romero, 2002) and they also differ in mineral content (Nyanjage, Wainwright, Bishop, & Cullum, 2001). These chemical differences speak for a production effect

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on taste evaluations (i.e., that organically grown products have better taste than conventionally grown products due to production differences) and could explain why there is a general taste preference for organic bananas.

However, just calling a product "eco-friendly" is enough to make people believe it tastes better than an objectively identical alternative. Because of this, it is unclear why consumers prefer the taste of eco-friendly products. In a recent set of experiments, Sörqvist et al. (2013) asked participants to taste two cups of coffee. The cups actually contained identical coffee, although the participants were told that one cup contained "eco-friendly" coffee and that the other did not. A systematic taste-preference bias for the eco-friendly alternative was revealed, especially in participants with a generally positive view toward eco-friendly consumer behavior. The participants were also willing to pay more for the "eco-friendly" coffee, especially those who preferred the taste of it. Similar findings have also been reported for wine (Wiedmann, Hennigs, Behrens, & Klarmann, 2014) as well as for potato chips and yoghurt, although the eco-label had the opposite effect for cookies (Lee, Shimizu, Kniffin, & Wansink, 2013). One possibility is that eco-labels can be associated with poor quality in some products, whereby the magnitude of the eco-label effect is modulated and the direction even reversed. Together, these results point toward the same conclusion: An eco-label tends to enhance the taste sensory evaluation of consumable products.

Label effects arise even if there is no reasonable relation between the product label and what is being evaluated about the product, a form of glorification (so-called halo effects). For example, people believe that chocolate claimed to be fair-trade is healthier (Schuldt, Muller, & Schwartz, 2012) and tastes better (Lotz, Chrisandl, & Fetchenhauer, 2013) than non-labeled alternatives. The reasons for this might be self-fulfilling expectations. People form expectations about future events and their expectations guide attention (Nöstl, Marsh, & Sörqvist, 2012), shape sensory perception (Deliza & MacFie, 1996) and modulate how the stimulus input is perceptually classified (de Araujo, Rolls, Velazco, Margot, & Cayeux, 2005). For example, if people expect they will be registering a smell of "cheddar cheese", the odor, upon presentation, is rated as more pleasant and activates different brain areas than if people would be expecting the smell of "body odor" instead (de Araujo et al., 2005). Moreover, informational framing appears to have its effect on the actual taste experience; the label effects are not just reflecting biases in self-reports (Litt & Shiv, 2012). The preference bias for eco-labeled products over objectively identical but conventionally labeled alternatives could be caused by similar expectation processes modulating the actual sensory experiences (e.g., Sörqvist et al., 2013). This can be called a distorted perceptions account of the eco-label effect. The overarching purpose of the current series of experiments is to study the mechanisms and limits of the eco-label effect.

2. Experiment 1

Experiment 1 addressed one limit of the eco-label effect: It explored whether the effect arises in both "organic" and "conventional" exemplars of the same fruit even though they differ in taste. If, for example, the eco-label effect only arises for conventionally grown bananas (that may be expected to have inferior taste to organically grown bananas based on the findings of Basker (1992)), but not for organically grown bananas, then the taste of the product appears to modulate when the eco-label effect becomes manifest. Thus, Experiment 1 differs from all other studies, to date, that have examined the eco-label effect on taste (Lee et al., 2013; Sörqvist et al., 2013; Wiedmann et al., 2014), in that previous studies only have compared taste evaluations of identical products (e.g., two cups of identical, organic coffee) wherein one of them is called "eco-friendly" and the other is called "conventional". In similar settings, there is no actual taste difference between the two products and, therefore, it is impossible to know from these studies whether the eco-label effect becomes manifest across different exemplars of the same food that differ in taste. As a solution to this extant shortcoming, we had people taste both conventionally grown and eco-friendly bananas. The bananas were labeled either "conventional" or "eco-friendly", but in half of the taste samples the label did not correspond with the actual type of banana.

3. Methods

3.1. Participants

Forty-eight Swedish individuals (11 males and 37 females, mean age = 27 years, range 18–56 years) participated in the study after informed consent. All participants received a chocolate bar as gratitude for their participation. The study was approved by the Uppsala regional ethical review board (Dnr 2013/132). As the data was treated confidentially, and no apparent ethical research complication with participation could be identified, oral consent was deemed sufficient by the ethical review board. The data collectors took note of the oral consent.

3.2. Materials

Products that are certified for being environmentally friendly are labeled "eco-friendly" ("Ekologisk" or "Kravmärkt") in Sweden, not "organic" (see Klintman & Boström, 2004, for an extended discussion), but the meaning of the two labels is very similar. Because of this, we use the words "organic" and "eco-friendly" interchangeably in this paper. Both the organic/eco-friendly and conventional bananas used in this study were of the type called *Cavendish*, because it is the most commonly grown banana specie and chemical differences between organically grown and conventional Cavendish bananas has been documented (Nyanjage et al., 2001). To assure, as far as practically possible, that the two types of banana had reached the same state in the maturation process, the selected eco-friendly and conventional bananas were very similar in color and size, and the slices looked approximately identical. A pilot experiment with 4 participants was conducted, using the same taste estimate scale as in the experiment proper (see below). In the pilot experiment, the participants tasted a single sample of an organic banana and a single sample of a conventional banana, and there were no labels (i.e., it was a blind test). The pilot confirmed that there was a noticeable taste difference between the two types of banana. Because of this, a taste difference between the two types of banana was expected in the experiment proper as well.

3.3. Design and procedure

The experiment took place on a university campus. People passing by the test site were recruited as participants and were told that the experiment was about taste of eco-friendly and conventional bananas. The participants tasted four different banana slices, sliced up on four different plates. Each slice was approximately 0.5–1.0 cm thick. Potential browning, due to air exposure, was controlled by removing any part of the banana that was exposed to air and not serving this to the participants. The slices that were served to the participants were cut just prior to tasting. Two plates were marked "eco-friendly" and two were marked "conventional". One slice from an eco-friendly banana was placed on a plate marked "eco-friendly" and one slice from the same banana was placed on the plate marked "conventional", and vice versa for a conventional