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RUNNING HEAD: TASTE AND MORALITY

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- 3 morality. Moral satisfaction renders food of ethical origin subjectively tastier. *Appetite*, *91*, 137-149.
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Savouring morality:

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Moral satisfaction renders food of ethical origin subjectively tastier

9

10 Boyka Bratanova^{1,2*}, Christin-Melanie Vauclair³, Nicolas Kervyn⁴, Sandy Schuman¹, Robert Wood²,
11 and Olivier Klein¹

12 ¹Research Centre for Social and Intercultural Psychology, Université Libré de Bruxelles, Bruxelles,
13 Belgium

14 ²Centre for Ethical Leadership, Ormond College, The University of Melbourne, Australia

15 ³ Instituto Universitário de Lisboa (ISCTE-IUL), Cis-IUL, Lisboa, Portugal

16 ⁴Center Emile Bernheim, Solvay Brussels School of Economy and Management, Université Libré de
17 Bruxelles, Bruxelles, Belgium

18

19

20 *Correspondence to be addressed to Boyka Bratanova, Centre for Ethical leadership, Ormond
21 College, The University of Melbourne, 49 College Crescent, Parkville, Victoria 3052, Australia. Email:
22 bbratanova@ormond.unimelb.edu.au, Phone: + 61 3 9344 1405

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Highlights

- 27 • Buying and consuming food of ethical origin brings about moral satisfaction
- 28 • Moral satisfaction renders the taste of ethical food subjectively superior
- 29 • This superior taste positively predicts intentions to buy ethical food
- 30 • The enhanced tastiness may act as a reward mechanism for buying ethical food

31

Abstract

32 Past research has shown that the experience of taste can be influenced by a range of external cues,
33 especially when they concern food's quality. The present research examined whether food's
34 ethicality – a cue typically unrelated to quality – can also influence taste. We hypothesised that
35 moral satisfaction with the consumption of ethical food would positively influence taste
36 expectations, which in turn will enhance the actual taste experience. This enhanced taste experience
37 was further hypothesised to act as a possible reward mechanism reinforcing the purchase of ethical
38 food. The resulting *ethical* food-> moral satisfaction-> enhanced taste expectations and experience->
39 stronger intentions to buy/*willingness to pay* model was validated across four studies: one large
40 scale international survey (Study 1) and three experimental studies involving actual food
41 consumption of different type of ethical origin - organic (Study 2), fair trade (Study 3a) and locally
42 produced (Study 3b). Furthermore, endorsement of values relevant to the food's ethical origin
43 moderated the effect of food's origin on moral satisfaction, suggesting that the model is primarily
44 supported for people who endorse these values. [174 words]

45 **Key words:** Ethics, Taste, Morality, Buying intentions, Fair trade, Organic food

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49 The past two decades have witnessed a dramatic and global increase in consumers' demand
50 for food of ethical origin. Since the establishment of the Fairtrade Labelling Organisation in 1997, the
51 market of fair trade products has spanned over 125 countries, reaching a value of 4.8 billion US
52 dollars in 2012 (FairtradeInternational, 2013). Similarly, organic food is produced in almost all
53 countries in the world (162 countries in 2011, cf. Willer & Lernoud, 2013), with the agricultural land
54 dedicated to organic produce expanding threefold since the late 90s; in 2011 the value of the
55 organic food market amounted to the remarkable 62.8 billion US dollars (Willer & Lernoud, 2013). In
56 the same vein, consumers are showing increasing preference for locally produced food, largely due
57 to its sustainability-related attributes (ATKearny, 2013; Day-Farnsworth, McCown, Miller, & Pfeiffer,
58 2009). While these statistics are a reason for celebration, they pose an intriguing question: What led
59 to this incredible increase in people's appetite for food of ethical origin, despite its typically higher
60 price? One obvious answer is a desire to contribute to good, moral causes, such as preserving the
61 environment and helping producers from developing countries. Indeed, research has shown that
62 moral considerations positively predict intentions to buy organic (Arvola et al., 2008) and fair trade
63 (Shaw & Shiu, 2002) food.

64 If the morally motivated pursuit of pro-environmental and altruistic causes is a leading factor
65 underpinning the increase in demand of food of ethical origin, then we should expect similar
66 increase in other activities reaching the same ends. To put this proposition to test, we compared
67 statistics from relevant sectors in the UK for the past ten years .In relation to ethical food
68 consumption, the UK market share for organic food has shown a threefold growth (SoilAssociation,
69 2010); even more astonishingly, the consumption of fair trade food has increased more than 26
70 times (FairTradeFoundation, 2011). However, the uptake of other forms of pro-environmental
71 behaviour has been rather modest in comparison (Defra, 2008); even engagement in recycling – one
72 of the least costly and most heavily campaigned forms of pro-environmental behaviour in the UK –
73 has increased at lower rates (235% vs. 300+% for organic food; Defra, 2011). Examinations of the
74 trends in charity donations for overseas causes – a behaviour also supporting people in developing

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75 countries as the purchase of fair trade food – reveals that the levels remained largely unchanged
76 over the past decade, both in percentage of donors and of the sums donated (UK Giving, 2011).
77 Thus, it appears that moral motivations alone are insufficient to explain the growth in sales of food
78 of ethical origin.

79 What is it then that contributed to the unparalleled increase in demand for food of ethical
80 origin? We propose that the operation of a possible reward mechanism – the subjective experience
81 of this food's taste as superior – may complement the role of morality in sustaining and increasing
82 people's appetite for it. To test this proposition, we designed the present research with a two-fold
83 aim. Firstly, we examined whether food of ethical origin is experienced as subjectively tastier
84 compared to food of conventional or unethical origin. If that was the case, we further sought to
85 examine whether its subjectively superior taste may act as a reward mechanism, reinforcing
86 subsequent buying intentions and willingness to pay a higher price.

87 Studying buying intentions is an efficient and frequently used way to gain an understanding
88 about actual purchase behaviour, often with a fairly good degree of accuracy; for instance, in a
89 meta-analysis of 87 behaviours, Sheppard, Hartwick, and Warshaw (1988) found a frequency-
90 weighted average correlation between intentions and behaviour of .53. However, researchers have
91 warned that behaviour may often diverge from stated intentions, especially with regard to ethical
92 consumption where social desirability and contextual factors play a significant role (for a review, see
93 Carrington, Neville, & Whitwell, 2010). Therefore, any findings obtained in research reliant on
94 intentions as a proxy measure of behaviour should be interpreted with caution (cf. Ajzen, Brown, &
95 Carvajal, 2004). Likewise, self-reported willingness to pay is an efficient and frequently used proxy
96 measure of actual purchase behaviour (for a review, see McCluskey & Loureiro, 2003), which
97 warrants caution in inferring real-world behaviour .

98 **Taste as influential yet malleable embodied experience**

99 Taste is one of the most important factors influencing consumers' food choice and purchase,
100 often outweighing other important factors such as food's healthiness and price (Glanz, Basil,

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101 Maibach, Goldberg, & Snyder, 1998; Magnusson, Arvola, Koivisto, Hursti, Aberg, & Sjoden, 2001).
102 And rather than being invariably determined by the food's chemosensory properties, the subjective
103 experience of taste can be affected by a range of external cues (for a review, see Coppin & Sander,
104 2011). For example, customers evaluated the taste of restaurant food more favourably when it was
105 described with appealing and evocative names than when it was described with standard names
106 (e.g., Succulent Italian Seafood Filet vs. Seafood Filet; Satin Chocolate Pudding vs. Chocolate
107 Pudding; Wansink, van Ittersum, & Painter, 2005). Furthermore, consumers reported experiencing
108 the taste of food or beverage as superior when it was served in popular brand packages than when it
109 was served unbranded or in less popular brand packages (McClure et al., 2004; Robinson,
110 Borzekowski, Matheson, & Kraemer, 2007). Brand's familiarity has been also found to influence taste
111 experience; consumers reported enjoying the taste of food or beverage more when it was served in
112 packages of familiar (vs. unfamiliar) brands (Cova & Pace, 2006; Paasovaara, Luomala, Pohjanheimo,
113 & Sandell, 2012).

114 In addition to documenting the influence of externally provided information (vs. observable
115 food properties, such as colour, smell, or texture) on the subjective experience of taste, researchers
116 have sought to examine how and why this influence occurs. Converging evidence from behavioural
117 and neuro-imaging research points to the role of expectations as a mechanism through which
118 external information influences gustatory experience (Chib, Rangel, Shimojo, & O'Doherty, 2009;
119 Lee, Frederick, & Ariely, 2006; Plassmann, O'Doherty, Shiv, & Rangel, 2008; Siegrist & Cousin, 2009).
120 Chib and colleagues (2009) and Plassman and colleagues (2008) have shown that the expectations
121 created by external information is accompanied by activation in reward-related neural substrates,
122 and is followed by higher self-reported ratings of subjective taste experience.

123 The external information provided in Chib et al.'s and Plassman et al.'s studies, as well as in
124 most other studies demonstrating its effect on taste, seem to concern the product's quality;
125 whether the food/beverage was described as succulent, its brand name was popular, its price was
126 high, or experts evaluated it favourably, consumers were likely to infer the food or beverage was of

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127 high quality. Expecting to consume food or beverage of high quality in turn influenced the
128 subjective taste experience.

129 **How could information about the food's ethicality influence taste?**

130 Information about the food's ethicality often bears little or no implications for its nutritional
131 and gustatory quality (for example, in fair trade, locally produced, or rainforest-friendly food).
132 Furthermore, although there are studies indicating that labelling food as of ethical origin may
133 positively influence taste, the evidence remains inconclusive. For instance, in a study on consumers'
134 evaluation of tomatoes the participants rated the taste of four sorts of tomatoes when each sort
135 was presented as either conventionally or organically grown, or with no information (Johansson,
136 Haglund, Berglund, Lea, & Risvik, 1999). The ratings tended to be higher when the consumers
137 believed the tomatoes were organically grown, however, this finding was not consistent across the
138 four sorts of tomatoes. In another study on taste evaluation participants in three conditions
139 consumed the same kind of juice which was presented as either organic, fair trade, or conventional
140 (Grankvist, Lekedal, & Marmendal, 2007). Although participants who believed the juice was organic
141 and fair trade (vs. conventional) tended to give higher taste ratings, this difference was not
142 statistically reliable ($p > .40$). Obtaining trends, but failing to detect a solid and reliable effect of
143 food's ethicality on taste may be due to the operation of undetected intervening processes that link
144 the food's origin to its (subjectively experienced) taste.

145 We propose that labelling food as of ethical origin can result in subjectively enhanced taste
146 experience to the extent that consumers feel a sense of moral satisfaction from buying or consuming
147 the food. The experience of moral satisfaction may further lead consumers to attribute more
148 positive characteristics onto the food, including forming expectations for its superior taste. As
149 outlined above, expecting to consume tastier food is likely to enhance the gustatory experience
150 when the food is actually consumed. In short, we hypothesise that ethical origin and enhanced taste
151 experience are linked by two sequential intervening processes: moral satisfaction and greater taste
152 expectations.

153 **Moral satisfaction as a link between food's ethicality and enhanced taste expectations and**
154 **experience**

155 Much evidence suggests that people are not only concerned about the outcomes of causes
156 they care about, but also derive personal benefit in the form of moral satisfaction when contributing
157 to such causes (e.g., Andreoni, 1989; 1990; 1993; Kahneman & Knetsch, 1992). Buying or consuming
158 food of ethical origin presents a readily available opportunity for people to attain moral satisfaction
159 by supporting a cause they consider important. The food then becomes not only a source of
160 nutrition and gustatory enjoyment but also a physical artefact symbolising the contribution.
161 Experiencing moral satisfaction derived from the contribution at the same time as sampling the food
162 may bring about a subjectively enhanced taste experience. This may be due to a halo effect whereby
163 moral satisfaction brings about a more positive perception of the food's properties, including
164 expectations for its superior taste.

165 Such halo effect may even have a neurological basis: neuro-imaging research suggests that
166 the reward-related neural network involved in the processing of primary rewards, such as the
167 anticipation and consumption of palatable food (Kim, Shimojo, & O'Doherty, 2011; Plassmann, et al.,
168 2008), is also involved in the processing of abstract rewards, such as the experience of moral
169 satisfaction when performing altruistic acts (e.g., donation to charity; Harbaugh, Mayr, & Burghart,
170 2007). It is conceivable that activation in this brain region arising from the experience of moral
171 satisfaction enhances the expectations about the food's taste as well as the subjective taste
172 experience when the food is consumed. This exciting possibility remains to be examined with
173 neuroimaging techniques. In the current research we examine the psychological aspects of the link
174 between moral satisfaction and taste expectations and experience via self-report measures.

175 **Values as a base for deriving moral satisfaction from ethical food consumption**

176 Purchase and consumption of food of ethical origin may not uniformly bring about a feeling
177 of moral satisfaction, however. Ethical origin may stem from the upholding of diverse moral values

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178 in the course of food production: pro-environmentalism in the case of organic and locally produced
179 food, equality and altruism in the case of fair trade food. The extent to which consuming food of a
180 given ethical origin results in moral satisfaction may depend on individuals' endorsement of the
181 corresponding values. In line with this argument, Harbaugh and his colleagues (2007) found that
182 observing monetary gain for charity triggered greater activation in reward-related brain regions for
183 people who endorsed altruistic values, and these people were also more likely to give to charity.
184 Similarly, in behavioural research de Groot and Steg (2008) showed that altruistic values predicted
185 donations to humanitarian charities, while biospheric values predicted donations to pro-
186 environmental charities. Therefore, it may be expected that endorsement of values relevant to the
187 principle upheld in the food production may moderate the effect of food's ethical origin on the
188 experience of moral satisfaction and its effect on taste expectations and experience, as well as on
189 buying intentions and willingness to pay.

The present research

191 The present research was designed to test two main hypotheses. The first hypothesis
192 concerned the subjective taste experience of ethical food. Based on the preceding review we
193 hypothesise that consuming food of ethical (vs. conventional or unethical) origin would evoke moral
194 satisfaction and greater taste expectations, which in turn would generate enhanced taste
195 experience. The second hypothesis concerned intentions to buy or willingness to pay for ethical
196 food. If the taste of ethical food is indeed experienced as superior, it is expected to have a positive
197 effect on intentions to buy and willingness to pay for that type of food in the future. The two
198 hypotheses can be expressed with the following path model: *ethical* food-> moral satisfaction->
199 enhanced taste expectations and experience-> stronger intentions to buy/willingness to pay. When
200 we test hypothesis 1, taste experience is treated as the dependent variable, food's ethicality as the
201 independent variable, and moral satisfaction and taste expectations as the proposed mediators.
202 When hypothesis 2 is tested, buying intentions or willingness to pay are treated as the dependent
203 variable, food's ethicality as the independent variable, and moral satisfaction, taste expectations and

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204 taste experience as the proposed mediators. A series of four studies were conducted to test this
205 model. Study 1 tested the model's generalizability to different populations by using data from an 8-
206 nation large scale survey on organic food, in which food's ethicality (i.e. environmental benefit) and
207 taste were assessed as beliefs. Study 2 sought to provide an experimental test of the model by
208 manipulating food's ethicality (i.e. environmentally beneficial organic food vs. conventional and
209 environmentally harmful food) and having people to assess its taste after an actual consumption.
210 These first two studies examined buying intention as an outcome variable. Studies 3a and 3b
211 provided a further experimental test of the model with two different types of ethical food – fair
212 trade and locally produced. In these studies we additionally sought to examine whether
213 endorsement of values congruent with the ethical principle upheld in the course of these foods
214 production would qualify the link between the food's origin and the moral satisfaction derived from
215 its consumption, as well as the effect of moral satisfaction on the subsequent variables in the model.
216 In these studies willingness to pay was examined as the outcome variable.

217 Study 1

218 As a first step of testing our model, we utilised items administered as a part of a large scale
219 survey examining beliefs and attitudes towards a commonly consumed type of organic food -
220 tomato sauce (TS)¹. The survey was conducted in the year of 2005 in eight European Union (EU)
221 countries: Denmark, Finland, Germany, Greece, Italy, Spain, Sweden, and the United Kingdom.
222 According to a European Commission report on organic farming from 2005, compared to 1999 all
223 countries members of the EU at the time increased the proportion of their land used for organic
224 production; in fact, all countries participating in the current survey except Spain had above the EU-
225 25 average proportion of area used for organic produce (European Commission, 2005). These country-
226 level statistics ensure that the national market trends for organic consumption at the time of
227 conducting the survey are appropriate for testing the psychological mechanisms underpinning a
228 growing demand for organic food.

229 Method

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230 Respondents. Respondents were 4, 161 members of the public from the eight European
231 countries. Respondents were randomly selected from households in major cities on the condition
232 that they are above 18 years of age, are at least partly responsible for grocery shopping in their
233 household, and purchase tomato sauce. The percentage of female respondents ranged between
234 50.9% and 87.5% across the eight countries. Roughly the same number of respondents was recruited
235 in three age groups: 18–30, 31–45 and 46–65 years.

236 Measures. All measures were administered in the official native language for each country.
237 To assess respondents' belief that organic TS is environmentally beneficial (i.e. has an ethical origin),
238 they were asked to rate on a 7-point scale (1=Extremely unlikely; 7=Extremely likely) how likely it is
239 that compared to conventional TS, organic TS is produced in a way that is better for the
240 environment. To assess moral satisfaction as a function of buying organic TS, respondents were
241 asked to indicate the extent to which they agreed (1=Strongly disagree; 7=Strongly agree) with the
242 following statements: "Buying organic TS instead of conventional one would feel like doing the
243 morally right thing", "Buying organic TS instead of conventional one would make me feel like a
244 better person", and "Buying organic TS instead of conventional one would feel like making a
245 personal contribution to something better ". The three items formed a reliable scale across all
246 national samples (Cronbach's α ranging from .74, in Spain, to .86, in Denmark) and were averaged to
247 form a measure of moral satisfaction. Beliefs about the organic TS taste were assessed by a single
248 item asking respondents to indicate how likely it is that organic TS tastes better than conventional TS
249 (1=Extremely unlikely; 7=Extremely likely). Using the same scale, respondents also indicated the
250 likelihood of buying organic TS instead of conventional one in the near future, as well as the firmness
251 of their intentions to do so (1=Definitely will not buy organic instead of conventional TS;
252 7=Definitely will buy organic instead of conventional TS). The two items measuring intentions to buy
253 organic TS were highly correlated across national samples, ranging from .60 (in Spain) to .82 (in
254 Germany) and so they were averaged.

255 Results

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256 Descriptives. The means and standard deviations of the measures included in the model are
257 summarised in Table 1.

258 [Table 1 around here]

259 Path model. The main aims of this analysis were to test whether 1) environmental benefit
260 beliefs are positively linked to expectations about organic TS' superior taste and whether this effect
261 was mediated by moral satisfaction; and 2) beliefs about the environmental benefit of organic TS are
262 positively linked with buying intentions, and whether this effect is mediated by both moral
263 satisfaction and taste expectations. We tested this path model using AMOS 18.0.0. and employing
264 Maximum Likelihood estimation. The analyses were conducted with missing values deleted listwise
265 ($N = 4,061$). The indirect effects of the mediators were assessed by a point estimate and a bias
266 corrected and bootstrapped percentile confidence interval (BCa 95% CI for 1000 bootstrap
267 iterations, s.a. MacKinnon, 2008). The indirect effect is significant if zero is not included in the
268 confidence interval. We first tested the model using the total sample. We then conducted a multi-
269 group analysis to test whether the model holds in each national sample.

270 The results for the total sample indicated that both hypotheses were supported: 1) beliefs
271 about the environmental benefit of organic TS were positively associated with expectations about its
272 superior taste ($\beta = .48$, $SE = .02$, $p < .001$) and this relationship was significantly mediated by moral
273 satisfaction (standardized point estimate = .177, BCa 95% CIs = 0.14, 0.18); 2) beliefs about the
274 environmental benefit of organic TS predicted intentions to buy ($\beta = .41$, $SE = .01$, $p < .01$) and was
275 mediated by moral satisfaction and expectations about the superior taste of organic TS
276 (standardized point estimate = .35, BCa 95% CIs = 0.35, 0.40). The direct effect of environmental
277 benefit beliefs on intention to buy was still significant, but after the inclusion of the mediators its
278 magnitude was substantially reduced ($\beta = .04$, $SE = .02$, $p < .01$). Forty-six per cent of the variance
279 associated with intention to buy were accounted for by the model. Since the model was just-
280 identified (with 0 df), we were unable to evaluate the model fit. The findings are summarised in
281 Figure 1.

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282 [Figure 1 around here]

283 Next, we tested whether the model was cross-nationally equivalent by fixing all parameters
284 to be invariant across samples. Although there was a significant chi-square [$\chi^2 (42, 4061) = 148.16, p$
285 $< .001$], which is common with large sample sizes (Bentler, 1990), other fit indices indicated that the
286 model fitted the data very well, RMSEA = .025, recommended level $< .10$; CFI = .981, recommended
287 level $> .95$; NFI = .973, recommended level $> .90$ (see Hu & Bentler, 1999 for recommendations). The
288 fit indices suggested that the structural relations of the model were invariant across groups. We
289 then compared this constrained model to an unconstrained model which had the same specified
290 structural relations, but in which all parameters were allowed to vary freely across national samples
291 (Byrne, 2004). We found a significant chi-square difference between the two models, [$\Delta\chi^2 (34) =$
292 $119.864, p < .001$], indicating that some of the regression weights were not invariant across groups.
293 Inspecting the results for each national samples we found that the regression weights were all
294 significant and of the same sign, but varied somewhat in size. All total, indirect, and direct effects
295 were significant across groups. The variance explained in intention to buy varied from 37.9% (in
296 Finland) to 49.7% (in the UK). We concluded that the model fitted each national sample well, but the
297 strength of the predictive relationships varied somewhat across samples (see Table 2). Thus, the
298 models with taste expectations and with intentions to buy as dependent variables were supported in
299 all eight countries, indicating their generalizability.

300 [Table 2 around here]

301 Discussion

302 Using a non-convenience sample, the study provided initial support for the *ethical* food→
303 moral satisfaction→ superior taste→ stronger intentions to buy model. It demonstrated that beliefs
304 about the food's ethical origin (i.e., environmental beneficial) positively predicted beliefs about its
305 superior taste and that this link was partly explained by moral satisfaction derived from the food
306 purchase. Furthermore, the study confirmed a longstanding finding that beliefs about superior taste
307 positively predicts intentions to buy. Given that the expectations about taste in the present model

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308 were predicted by the food's origin and moral satisfaction, it provides initial evidence that beliefs
 309 about taste may indeed act as a reinforcing mechanism for the purchase of ethical food. The
 310 proposed model was obtained in all eight countries, indicating its generalizability for developed
 311 countries across different cultural and socio-economic contexts.

312 Although this study helped demonstrate the feasibility and generalizability of the proposed
 313 model, it had several limitations. Firstly, it was correlational in nature and despite the use of the
 314 structural equation modelling technique, it did not provide a solid basis for inferences about
 315 causality. Secondly, it relied on measures of beliefs about the environmental benefit of organic food
 316 and expectations about the taste of organic TS compared to conventional TS. As such, it did not
 317 allow us to fully test our hypothesis that food's ethical origin leads to enhanced taste experience and
 318 that this enhanced taste experience acts as a reinforcing mechanisms for future ethical food
 319 consumption. Finally, moral satisfaction was measured within a hypothetical scenario of
 320 respondents buying the organic TS. The hypothetical nature of these measures limits the ecological
 321 validity of the findings. To address these limitations we designed a series of 3 follow-up
 322 experimental studies to test the causal effect of ethical food origin, to measure taste expectations,
 323 and to examine the experience of taste after actual consumption.

324 Study 2

325 The aim of this study was to follow up the findings obtained with the large scale survey by
 326 adopting an experiment-based approach. As in Study 1, we tested the two main hypotheses
 327 comprising our model. However, in this study we measured taste expectations prior to food
 328 consumption and taste experience following consumption. The first hypothesis therefore tested
 329 whether the effect of food's origin on taste experience is mediated by moral satisfaction and taste
 330 expectations, while the second hypothesis tested whether the effect of food's origin on intentions to
 331 buy is mediated by moral satisfaction, taste expectations, and taste experience.

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332 In addition, we sought to establish with greater precision the role of moral satisfaction in
333 triggering greater taste expectations and enhanced taste experience by disentangling it from
334 positive mood and controlling for expectations about the food's quality.

335 Method

336 Participants. Participants were 112 (84 female) undergraduate students from a Belgian
337 university, with a mean age of 20.57 years ($SD = 4.97$). They participated in exchange for course
338 credit.

339 Design and Procedure. Upon arrival, participants were seated in separate cubicles. They
340 were informed that the study involved impression formation of a company called 'Duskin' and
341 evaluation of the taste of a product manufactured by this company – biscuits. Participants were
342 randomly allocated to one of two conditions whereby the 'Duskin' company was described as either
343 engaging in environmentally friendly or environmentally harmful production and distribution
344 practices (see also Appendix A).²

345 To check whether the experimental manipulation elicited impressions of the company as
346 environmentally friendly or harmful, participants were asked to indicate the extent to which they
347 agreed (1 = Strongly disagree; 7 = Strongly agree) that 'Duskin' cares about the environment, takes
348 the environment into account in its actions, and has the intentions to preserve the environment.
349 Next, participants rated on the same scale the extent to which the following adjectives reflect their
350 current mood: I feel content; joyful; happy; energetic; in a good mood. They also rated the extent
351 they agree that 'Duskin' produces high quality biscuits (1 = Strongly disagree; 7 = Strongly agree). To
352 measure moral satisfaction, participants were asked to indicate on the same scale the extent they
353 agreed that consuming the 'Duskin' biscuits would make them feel like a better person; a more
354 environmentally friendly person; and like contributing to a good cause. Afterwards participants rated
355 on a 7-point scale how tasty, flavoursome, and enjoyable they expected the 'Duskin' biscuits to be (1
356 = *Not at all tasty/flavoursome/enjoyable*; 7 = *Very tasty/flavoursome/enjoyable*). The items

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357 measuring the manipulation check, participants' mood, moral satisfaction, and taste expectations
358 showed high internal consistency ($\alpha \geq .92$) and so they were averaged to form the respective scales.

359 Then all participants were served a plate with the same type of biscuits. After eating at least
360 one biscuit, participants were asked to continue working on the questionnaire. They were asked to
361 rate how tasty, flavoursome, and enjoyable they found the 'Duskin' biscuits on a 7-point scale (1 =
362 *Not at all tasty/flavoursome/enjoyable*; 7 = *Very tasty/flavoursome/enjoyable*). The items measuring
363 taste were averaged as they formed a highly reliable scale ($\alpha = .96$). Finally, participants were asked
364 to indicate how likely it is that they would buy the 'Duskin' biscuits (1 = Not at all likely; 7 = Very
365 likely).

366

367 Results

368 Manipulation check. An independent sample t-test revealed that participants rated the
369 company as more environmentally friendly ($M = 5.86$, $SD = .77$) after reading the pro-environmental
370 company description than after reading the description in which the company was portrayed as
371 environmentally harmful ($M = 1.88$, $SD = .76$). This difference was significant, $t(110) = 27.54$, $p <$
372 $.001$, Cohen's $d = 5.20$, indicating that the experimental manipulation exerted the intended effect on
373 impressions of the company.

374 Descriptives. The means and standard deviations of mood, biscuits quality, moral
375 satisfaction, taste expectations and experience, and intentions to buy are presented in Table 3,
376 along with a significance test of the differences between conditions. Participants reported being in
377 more positive mood after reading the environmental friendly (vs. harmful) description of the
378 'Duskin' company, although this effect was not statistically significant. They believed that 'Duskin'
379 produces higher quality biscuits when the company was said to engage in environmentally friendly
380 (vs. harmful) practices. This effect was expected as food's ethicality was closely related to the
381 process of its production (e.g., involving chemicals or not). All of the effects of condition on the

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382 remaining variables were in the predicted direction, although the effect of condition on taste
383 experience did not reach standard levels of significance.

384 [Table 3 around here]

385 To test our first hypothesis, namely whether the effect of condition on taste experience was
386 mediated by moral satisfaction and taste expectations, we used a multiple mediation model with
387 serial mediators (Hayes, 2012; model 6). In this model mediators are assumed to operate in a serial
388 order and form a causal chain whereby the independent variable affects the first mediator, the first
389 mediator affects the second, and the second mediator affects the third, which in turn affects the
390 dependent variable. This model is appropriate for testing our hypotheses as it specifies a carryover
391 effect from the food's (ethical) origin to moral satisfaction, from moral satisfaction to taste
392 expectations, and from taste expectations to taste experience. When testing our second hypothesis,
393 intention to buy the product is added to the serial mediation model as the dependent variable, while
394 taste experience is treated as the third mediator in the causal chain. The model also allows
395 controlling for the effect of possible confounding variables by treating them as additional
396 independent variables and testing their effect on each of the proposed mediators and on the
397 dependent variable. We included participants' self-rated mood and their expectations for the
398 biscuits' quality as variables to be controlled for in the model.

399 It should be noted that contemporary approaches to mediation analysis do not require a
400 significant effect of the independent on the dependent variable, and instead focus on assessing the
401 significance of the indirect path specified by the model (Hayes, 2009; Rucker, Preacher, Tormala, &
402 Petty, 2011). It has even been suggested that focusing on the significance of the total effect might
403 cause researchers to miss theorized relationships that are present in the data. Hence, in the present
404 study we focused on ... To conduct a formal significance test on the specified indirect paths we relied
405 on the default bootstrapping procedure implemented in the corresponding macro for testing serial
406 mediation (Hayes, 2012; model 6), whereby a path is deemed significant if the 95% bias corrected
407 bootstrap confidence intervals (CIs; based on 10 000 samples) do not include zero.

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408 The results from the two models are summarized in Figure 2. As in the previous research
409 reviewed in the introduction, expectations about the food's quality positively predicted taste
410 expectations. However, consistent with our hypothesis, taste expectations were also predicted by
411 moral satisfaction. From the six variables included as predictors of the subjective taste experience,
412 only taste expectations had a significant effect. When taste experience was the dependent variable,
413 the overall model was significant, $F(6,101) = 7.15$, $p < .001$, and explained 30% of the variance
414 associated with taste. Critically for our hypothesis, the indirect path between condition and taste
415 experience through moral satisfaction and taste expectations was significant, 95% CIs (0.10; 0.76).
416 The direct effect of condition and the indirect effect through moral satisfaction only were non-
417 significant.

418 When intentions to buy was included as the dependent variable, the overall model was
419 significant, $F(7,100) = 23.18$, $p < .001$, and explained 62% of the variance associated with intentions
420 to buy the biscuits. The only significant path through which the experimental condition influenced
421 buying intentions was through moral satisfaction, taste expectations, and taste experience was
422 significant, 95% CIs (0.11; 0.92; see Figure 2). These findings indicate that the feeling of moral
423 satisfaction when consuming food of ethical origin elicits a subjectively superior taste experience,
424 which in turn positively predict, and possibly reinforce, intentions to buy that food.

425 [Figure 2 around here]

426 Discussion

427 The current study replicated and extended the main findings obtained with the large scale
428 survey in Study 1. The experimentally manipulated impressions of a company's environmental
429 practices influenced the experience of taste when consuming biscuits ostensibly produced by that
430 company. Providing support for our first hypothesis, this effect was mediated by moral satisfaction
431 derived from the biscuits consumption and by taste expectations. Our second hypothesis was also
432 supported: along with moral satisfaction and taste expectations, the experience of taste was a
433 significant mediator of the effect of condition on intentions to buy the biscuits. Importantly, this

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434 study also demonstrated that the effect of moral satisfaction is distinct from that of positive mood,
435 and explains unique variance in taste expectations, over and above the variance explained by
436 perceptions of the food's quality. These results provide additional support for our model, and show
437 that the food's ethical origin plays a causal role in inducing moral satisfaction, and through moral
438 satisfaction influences the expectation and experience of taste, as well as intentions to buy the food
439 in the future.

440 In this study the company was portrayed as either environmentally friendly or
441 environmentally harmful. However, more often than not consumers lack knowledge about
442 companies' unethical practices. While companies that engage in ethical practices are likely to
443 advertise these aspects of their operation, those who engage in unethical practices are likely to try
444 to conceal it. An additional limitation of the Study 2 design was that it remained unclear whether
445 the obtained effects of condition on the mediators and the dependent variables were due to a
446 positive influence of the food's ethical origin, a negative influence of the food's unethical origin, or
447 both. Moreover, although we controlled for the perceived food's quality, the Duskin biscuits in the
448 environmentally friendly condition may have been regarded as organic and healthier (e.g., free of
449 pesticides), which may have influenced participants' taste expectations and experience. The next
450 studies were designed to address these limitations.

451 Studies 3a & 3b

452 Studies 3a and 3b were designed to extend our findings in several important ways. Firstly,
453 we aimed to test whether our two main hypotheses are supported when a company committed to
454 ethical practices is contrasted with a company portrayed as engaged in conventional rather than
455 unethical practices. In addition to being more realistic, using conventionally produced food as a
456 comparison condition can help delineate the positive effect of ethical from a possible negative effect
457 of unethical food origin. In testing the second main hypothesis, we measured willingness to pay in
458 order to extend our model to another essential aspect of consumers' approach behaviour towards
459 food of ethical origin.

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460 We also aimed to test whether the model applies to other types of ethical food origin.
461 Studies 1 and 2 used organic products, which in addition of being grown in environmentally friendly
462 way, are often perceived as healthier and of higher quality (SoilAssociation, 2010). In Studies 3a and
463 3b we attempted to rule out the possibility that the findings from Studies 1 and 2 are limited to
464 organic food rather than food of ethical origin more generally. To do that, we presented the food
465 (chocolate) and beverage (apple juice) as fair trade and locally produced, respectively - external
466 characteristics that denote an ethical production but have little or no bearing for the product quality
467 and its taste per se.

468 Finally, in studies 3a and 3b we explored the reasons why people derive moral satisfaction
469 when consuming food of ethical origin. We propose that endorsing values relevant to the specific
470 ethical principle upheld in the course of the food production should qualify the experience of a
471 sense of moral satisfaction when consuming the food (cf. de Groot & Steg, 2008; Harbaugh, et al.,
472 2007). More specifically, we hypothesise that moral satisfaction derived from consumption of food
473 with ethical origin will be higher for people who endorse the values relevant to the manner in which
474 the food was produced. We expect that participants who endorse altruistic values would derive
475 greater moral satisfaction when consuming fair trade chocolate than those who do not endorse
476 altruistic values, and participants who endorse pro-environmental values would derive greater moral
477 satisfaction when consuming locally produced apple juice than those who do not endorse pro-
478 environmental values. As a result, we expect the mediation by moral satisfaction of the effect of
479 food's origin on taste expectations (as well as on the subsequent variables in the model) to be
480 moderated by value endorsement.

481 Method

482 Participants were 50 (40 female) undergraduate students from a British university with a
483 mean age of 19.32 (SD = 1.56). They participated in the study in exchange of course credit.

484 Upon signing up for the study, participants were emailed a link to a brief online
485 questionnaire and asked to complete it before coming to the lab to take part in the main study. The

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486 questionnaire consisted of eight items measuring altruistic (e.g., equality, peace) and pro-
487 environmental values (also referred to as biospheric values; e.g., unity with nature, protecting the
488 environment; de Groot & Steg, 2008).⁴

489 Upon arrival to the main study, participants were seated in separate cubicles and informed
490 that they will participate in impression formation and taste evaluation tasks. All participants took
491 part in both studies, first completing Study 3a and then Study 3b. Both studies consisted of two
492 conditions, to which participants were randomly allocated, and allocations to the conditions in Study
493 3b were independent of those in Study 3a. The design and procedure of each study were patterned
494 after those in Study 2. However, instead of biscuits, participants were served chocolate in Study 3a,
495 and apple juice in Study 3b. The same type of chocolate and apple juice was served to all
496 participants. To manipulate ethical origin of chocolate, participants were presented with either a
497 description of a fair trade or conventional chocolate producing company (see Appendix B). To
498 manipulate ethical origin of apple juice, participants were presented with a description of a
499 company that produces apple juice from either local or imported ingredients (see Appendix C).

500 The same items were used to measure taste expectations and taste experience as in Study 2.
501 Moral satisfaction was measured with two of the items used in Study 2: “Consuming ‘Morena’
502 chocolate/’Duskin’⁴ apple juice would make me feel a better person” and “Consuming ‘Morena’
503 chocolate/’Duskin’ apple juice would feel like making a personal contribution to a good cause”. All
504 scales showed good reliability ($\alpha_s \geq .79$) and the respective items were averaged to form composite
505 measures of altruistic and biospheric values, moral satisfaction, expectations of taste, and taste
506 experience. In these studies instead of intentions to buy the product we measured willingness to pay
507 (WTP) as another variable of high importance for the market success of companies producing food
508 of ethical origin. Participants were asked to indicate how much (in £) they were prepared to pay for
509 a 100gr bar of ‘Morena’ chocolate and 1L of ‘Duskin’ apple juice respectively.

510 Results

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511 Descriptives and analyses of variance. The means and standard deviations of the variables
512 from studies 3a and 3b are shown in Table 4 and Table 5, respectively, along with a significance test
513 of the differences between conditions. For chocolate 'Morena' all differences were in the predicted
514 direction, although the results for taste expectations and taste experience did not reach standard
515 levels of significance. For apple juice 'Duskin' although the mean differences in taste expectations
516 are in the predicted direction, the mean differences in taste experience and WTP are in the reversed
517 direction. This reversal may have occurred because participants first tasted the chocolate and then
518 the apple juice. The sweet taste of the chocolate may have amplified the sour taste of the apple
519 juice and somewhat disappointed participants who expected better tasting apple juice (i.e., those in
520 the locally produced condition), leading to lower evaluations of taste and correspondingly lower
521 WTP. In any case, these reversed differences were far from significant and do not interfere with the
522 main hypotheses to be tested, namely for 1) an indirect effect of food's ethical origin on taste
523 experience through moral satisfaction and taste expectations, and 2) an indirect effect of food's
524 ethical origin on WTP through moral satisfaction, taste expectations, and taste experience.

525 [Table 4 around here]

526 [Table 5 around here]

527 **Moderation by value endorsement of the effect of food's origin on moral satisfaction.** We
528 examined whether deriving moral satisfaction from ethical food consumption was affected by
529 participants' endorsement of the values relevant to the ethical principle upheld in the course of food
530 production. More specifically, we hypothesised that altruism as a value dimension encompassing
531 equality, helpfulness, and concerns about others, will moderate the effect of fair trade (vs.
532 conventional) status on moral satisfaction with the chocolate consumption (Study 3a). Endorsement
533 of biospheric values was expected to moderate the effect of locally produced (vs. imported) status
534 on moral satisfaction with the apple juice consumption. We used the macro for simple moderation
535 developed by Hayes (2012; model 1) to test these hypotheses.

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536 Indeed, in Study 3a the simple moderation analysis revealed a significant interaction
537 between condition and altruistic values score, $B = .89$, $t(40) = 2.65$, $p = .011$, along with a significant
538 main effect of condition, $B = 2.02$, $t(40) = 5.58$, $p < .001$, and marginally significant main effect of
539 altruism, $B = .27$, $t(40) = 1.61$, $p = .115$. These predictors explained 55% of the variance associated
540 with moral satisfaction derived from consuming fair trade chocolate. The simple slope effects
541 revealed that condition significantly predicted moral satisfaction for people with medium (50th
542 percentile), $B = 2.25$, $p < .001$, and high (90th percentile) in altruism, $B = 2.91$, $p < .001$, but not for
543 those low (10th percentile) in altruism, $B = .69$, $p = .28$. The simple slope effects are illustrated on
544 Figure 3.

545 [Figure 3 around here]

546 In Study 3b, the simple moderation analysis revealed a marginally significant interaction
547 effect, $B = .52$, $t(40)=1.98$, $p = .055$, as well as significant main effects of condition, $B = .74$, $p = .043$,
548 and biospheric values, $B = .43$, $t(40) = 3.29$, $p = .002$. These variables explained 37 % of the variance
549 associated with moral satisfaction derived from the apple juice consumption. Replicating the
550 findings from Study 3a, the simple slope analyses revealed that condition significantly predicted
551 moral satisfaction for participants with moderate (50th percentile), $B = .83$, $p = .025$, and strong (90th
552 percentile) endorsement of biospheric values, $B = 1.61$, $p = .006$, but not for those with weak (10th
553 percentile) endorsement of biospheric values, $B = .66$, $p = .62$. The simple slope effects are illustrated
554 on Figure 4.

555 [Figure 4 around here]

556 **Moderated mediation: Does value endorsement moderate the mediation effect of**
557 **moral satisfaction?** Since value endorsement indeed affects moral satisfaction derived from ethical
558 food consumption, a further question is whether the mediation effect of moral satisfaction obtains
559 only for those who endorse the values relevant to the ethical origin of food. To answer this
560 question, we tested for moderated mediation by using a macro developed by Hayes (2012; model 7).
561 Condition was treated as the independent variable, altruistic/biospheric value endorsement as a

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562 moderator, moral satisfaction as a mediator and taste expectations as the dependent variable.

563 Because the macro allows for the inclusion of only one mediator, we included taste expectations as

564 the dependent variable as it is the variable hypothesised to be affected by moral satisfaction.

565 As shown in Table 6, the effect of condition on taste expectations was significantly

566 mediated by moral satisfaction for participants who scored on and above the mean on the

567 altruistic/biospheric value scale, but not for participants who scored one standard deviation below

568 the mean. This finding suggests that value endorsement constitutes a boundary condition for our

569 proposed model. Although the available macro did not allow us to examine whether the moderated

570 mediation effect carries over to the subsequent variables in the model (i.e., taste experience and

571 WTP), the effect on taste expectations suggests that the model is likely to obtain for consumers who

572 endorse (whether moderately or strongly) the values relevant to the food's ethical origin, but not for

573 those who do not endorse these values.

574 [Table 6 around here]

575 **Serial mediation: Does our model replicate?** Finally, to assess whether the obtained

576 models in Studies 1 and 2 ethical origin→ moral satisfaction→ enhanced taste expectations→

577 *enhanced taste experience*→ WTP replicates in the current studies, we conducted the serial

578 mediation analyses (Hayes, 2012; model 6). It should be noted that due to constraints in the

579 available macro the moderating role of values is ignored in these analyses.

580 Replicating the findings from the previous studies, the chocolate's fair trade (vs.

581 conventional) status positively predicted taste experience through the moral satisfaction and taste

582 expectations path, 95% CIs (0.05, 0.70). The indirect effect through moral satisfaction only was non-

583 significant. The overall model was significant, $F(3, 46) = 5.78, p = .002$, and explained 27% of the

584 variance associated with the taste experience of 'Morena' chocolate.

585 To explore the indirect effect of the food's fair trade status on WTP via moral satisfaction,

586 taste expectations, and taste experience, WTP was included as the outcome variable. This analysis

587 revealed a significant overall model, $F(4, 45) = 3.34, p = .018$, explaining 23% of the variance

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588 associated with WTP. The only significant indirect effect of the experimentally manipulated fair trade
589 (vs. conventional) status of 'Morena' on WTP was through the three proposed mediators, 95% CIs
590 (0.01, 0.18). The findings from both of the analyses with taste experience and with WTP as the
591 outcome variable are summarized on Figure 5.

592 [Figure 5 around here]

593 The same pattern of results was obtained in Study 3b (see Figure 6). The locally produced
594 status of the apple juice positively predicted the experience of its taste through moral satisfaction
595 and taste expectations path, 95% CIs (0.02; 0.39). No other indirect path was significant. The overall
596 model was significant, $F(3,46) = 5.38$, $p = .003$, and explained 27% of the variance associated with
597 apple juice taste experience.

598 When WTP was the outcome variable, the overall model was also significant, $F(4,45) = 5.36$,
599 $p = .001$, explaining 32% of the variance associated with WTP for 'Duskin' apple juice. The only
600 significant indirect effect of the locally produced (vs. imported) status was through the three
601 proposed mediators, 95% CIs (0.001, 0.11). Figure 6 summarises the findings from the serial
602 mediation analyses with both taste experience and WTP as outcome variables.

603 [Figure 6 around here]

604 Discussion

605 The proposed *ethical origin* → *moral satisfaction* → *enhanced taste expectations* → *enhanced*
606 *taste experience* → *higher willingness to pay* model was successfully replicated in Studies 3a and 3b.

607 This finding further suggests that taste may act as a reinforcer for consumers' behavioural
608 tendencies related to the market success of food of ethical origin. These studies also revealed an
609 important boundary condition for the model – consumers' endorsement of values relevant to the
610 ethical food origin: Only people who endorsed altruistic values derived moral satisfaction from
611 consuming fair trade (vs. conventional) food, and only people who endorsed biospheric values
612 derived moral satisfaction from consuming locally produced (vs. imported) beverage. Furthermore,
613 moral satisfaction mediated the effect of the food's origin on taste expectations (and possibly taste

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614 experience and WTP) only for people who endorsed the respective values. These findings
615 demonstrate that the experience of moral satisfaction from ethical food consumption, and its
616 positive effect on taste, has its grounds in individuals' value system.

617 In addition, the present studies used types of ethical food unlikely to imply higher food
618 quality or health benefits: fair trade and locally produced. Replicating the effects obtained with
619 organic food (Studies 1 and 2) with fair trade and locally produced food further suggests that moral
620 satisfaction plays a unique role in evoking expectations for superior taste and in this turn leads to
621 enhanced taste enjoyment. Finally, using conventional food as a comparison condition helped
622 establishing the positive effect of ethical origin on moral satisfaction (as well as taste expectations
623 and possibly taste experience), and isolating it from a possible negative effect triggered by unethical
624 food origin.

General Discussion

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626 The present research examined the possibility that subjectively experiencing food of ethical
627 origin as tastier may act as a reward mechanism reinforcing the purchase and consumption of this
628 food. In examining this possibility, two main hypotheses were formulated and tested. The first one
629 concerned the link between the food's ethical origin and its subjectively superior taste. We
630 postulated that by casting a halo effect on the food's properties, the experience of moral satisfaction
631 results in higher expectations about the food's tastiness which in turn enhances the experience of
632 taste when the food is consumed. The second hypothesis tested whether the subjectively superior
633 taste experience further predicts consumers' tendencies to approach food of ethical origin; in
634 testing the second hypothesis we used measures of buying intentions and willingness to pay. The
635 resulting *ethical food*→ moral satisfaction→ enhanced taste expectations and experience→
636 stronger intentions to buy/*willingness to pay* model was supported in four studies. Using non-
637 student samples in a large-scale multinational survey on attitudes and beliefs about organic food,
638 Study 1 showed that the effects specified in the model are generalizable to the adult population in
639 developed countries. Study 2 demonstrated the causal effect of food's ethical origin (i.e. organic and

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640 environmentally friendly) by adopting an experiment-based approach. This study also allowed
641 establishing the unique role of moral satisfaction for the generation of superior taste expectations,
642 ruling out the possibly confounding effects of positive mood and perceptions of product quality.
643 Studies 3a and 3b extended the context of food's origin and demonstrated that the model held also
644 for fair trade and locally produced food. Together, the four studies provided substantial evidence
645 that a) food of ethical origin is experienced as tastier due to moral satisfaction and enhanced taste
646 expectations; and b) the morality-enhanced tastiness of ethical food appears to act as a reinforcing
647 mechanism that sustains consumers' buying intentions and willingness to pay for ethical food – two
648 measures likely to reflect consumers' actual purchasing behaviour (cf. Ajzen, 1991; McCluskey &
649 Loureiro, 2003).

650 It is conceivable that the experience of moral satisfaction during the initial morally-
651 motivated purchases facilitates the establishment of ethical food – superior taste link. Once this link
652 is established, consumers may adopt the belief that ethical food is tastier than conventional
653 alternatives (as it was the case in Study 1), and taste may take precedence over moral considerations
654 in predicting its further purchase. Findings from a longitudinal consumer survey lend support to this
655 possibility, showing that the initial purchase of organic food tends to be motivated by environmental
656 concerns, however, repeated purchase is best predicted by taste and price (Grankvist & Biel, 2007).

657 We assumed two possible bases for a link between moral satisfaction and taste
658 expectations and experience: psychological, in the form of a halo effect, and neurological, in the
659 form of activation of common reward-related neural system (Chib, et al., 2009; Harbaugh, et al.,
660 2007; Plassmann, et al., 2008). Because of the self-report method used in our studies, the findings
661 can provide a direct support only for the psychological link. The exciting possibility that moral
662 satisfaction and taste are related at the level of neural activation remains to be confirmed with
663 neuro-imaging techniques.

664 Previous research failed to provide clear evidence for the hypothesis that people find
665 ethical food subjectively tastier (Grankvist, et al., 2007; Johansson, et al., 1999). Even though in the

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666 present research the direct effect of food's origin on taste experience was not always significant, the
667 indirect paths through moral satisfaction and enhanced taste expectations were reliably obtained
668 across all four studies, indicating the robustness of the finding. A growing number of social scientists
669 emphasise the importance of examining indirect effects, arguing that an excessive focus on the
670 effect of the independent variable on the dependent variable may hinder the discovery of
671 intervening psychological processes (Hayes, 2009; Rucker, et al., 2011). The present research is one
672 such example – had moral satisfaction and taste expectations been ignored, the effect of ethical
673 food origin on taste and buying intentions would not have been identified.

674 It is important to note that food's ethical origin does not always translate into enhanced
675 taste experience. As demonstrated by Studies 3a and 3b, individual differences in values
676 endorsement also play a role. Consumers' values moderated the link between food's ethical origin
677 and its subjectively superior taste: the link occurs only for consumers who endorsed the values
678 relevant to the food's ethical origin. This finding is consistent with a large literature documenting the
679 role of values as a common motivational basis for diverse forms of pro-environmental and pro-social
680 behaviour (de Groot & Steg, 2008; Schultz & Zelezny, 1999; Stern, Kalof, Dietz, & Guagnano, 1995).
681 Adding to this body of research, Studies 3a and 3b demonstrated that taste could act as a reward
682 mechanism sustaining the consumption of food of ethical origin only for consumers who endorse
683 values relevant to the principle upheld in the course of the food's production. Values are usually
684 regarded as a stable individual-difference variable by definition (for e.g., see Schwartz, 1992 who
685 defines values as trans-situational guides in life). Yet, some researchers also suggested that values
686 can be changed, for instance after confronting people with inconsistencies in their value hierarchy
687 (Rokeach, 1973) or after analysing reasons for the importance of particular values if individuals lack
688 cognitive support for them (Maio & Olson, 1998). Future research could examine whether a value
689 change intervention for individuals who score low on altruism and environmental values can
690 increase their moral satisfaction after consuming ethical food. Since moral satisfaction predicted

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691 intentions to buy in our study, results from such an intervention would bear important implications
692 for the ethical food market in terms of how the market share could be further increased.

693 **Limitations and future research**

694 In this research, we used self-report rather than behavioural measures of consumers'
695 tendency to purchase food of ethical origin. While intentions to buy and willingness to pay are
696 widely used measures and generally valid predictors of actual purchase behaviour (Ajzen, 1991;
697 Wertenbroch & Skiera, 2002), external factors, such as difficulty finding the preferred ethical food or
698 having limited budget, may influence the link between buying intention or willingness to pay and
699 actual purchase behaviour (Kaiser & Wilson, 2004), but becomes more apparent when an actual
700 purchase is undertaken.

701 Further, the current research relied on snapshots rather than longitudinal studies, thus
702 leaving the proposed function of taste as a reward mechanism reinforcing purchase behaviour
703 insufficiently examined. Although some convergent support for our proposition is offered by
704 previous research (Grankvist & Biel, 2007), further research is needed to clearly establish the effect.
705 Nevertheless, the present research illuminated the previously unidentified role of psychological
706 processes, such as moral satisfaction and enhanced taste expectations and experience, in explaining
707 the extraordinary large increase in demand for ethically produced food witnessed over the past two
708 decades.

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735 Footnotes

736 ¹These data were collected as part of the project 'Consumer Decision Making on Organic Products
737 (CONDOR)' (QLK1—2002—02446) funded by the Commission of the European Communities and
738 coordinated by Richard Shepherd. The current analyses test hypotheses different to the hypotheses
739 originally set out to be tested by the data collected in the survey.

740 ² The study originally involved 4 conditions resulting from the crossing of environmentally friendly
741 vs. environmentally harmful production and distribution practices and competent vs. incompetent
742 company. To vary competence, the company was either described as making consistent profits or as
743 failing to earn sufficient profit for its shareholders. In the present analyses we focus on the
744 environmentally friendly (vs. harmful) manipulation. However, in all analyses the competence factor
745 was included as a covariate to control for its effect. The effect of competence on all of the variables
746 included in the model (Figure 2) was non-significant ($p_s > .16$).

747 ³ Six participants failed to complete this questionnaire, leading to missing data in the moderation
748 analyses.

749 ⁴The same fictive name 'Duskin' was used for the juice in Study 3b, as the name for the biscuits in
750 Study 2.

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758 Appendix A: Company description used in Study 2

759 Environmentally harmful condition. Duskin is a producer of breakfast cereals, muesli bars, and other
760 grain based snacks. The company imports the grains necessary for the manufacturing of its products
761 from various countries. Because of this practice the company has been frequently criticized for
762 causing severe environmental pollution. The company has never made any attempts to offset its
763 carbon footprint and refused to donate to charitable projects aimed at environmental preservation.
764 The Duskin products are being sold in many countries in the world, including Belgium and the UK, as
765 well as Australia, and New Zealand.

766 Environmentally friendly condition. Duskin is a producer of breakfast cereals, muesli bars, and other
767 grain based snacks. To limit its negative impact on the environment as much as possible, the
768 company only uses chemical-free and locally grown grains for the manufacturing of its products. It
769 also frequently donates to charitable projects aimed at environmental preservation. The company
770 preferentially distributes its products for sale in the local markets, supermarket chains, and
771 individual shops.

772 Appendix B: Company descriptions used in Study 3a

773 Conventional condition. 'Morena' is a brand of chocolate produced by a large foreign company with
774 a long tradition within the food industry. The company is looking to enter the British market with its
775 cocoa based products; most notably, the company aims to introduce its chocolate range.

776 The company sources the cocoa for its products from developing countries. As many other
777 companies, this company engages in trading practices with producers from developing countries
778 that allow it to pay as low price as possible. This enables the company to earn a maximum profit for
779 its shareholders.

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780 Fair trade condition. 'Morena' is a brand of chocolate produced by a large foreign company with a
781 long tradition within the food industry. The company is looking to enter the British market with its
782 cocoa based products; most notably, the company aims to introduce its chocolate range.

783 The company sources the cocoa for its products from developing countries. All products with the
784 brand 'Morena' are certified as Fair Trade. The company is a committed partner in equitable trading,
785 ensuring that farmers in developing countries receive a better deal for their cocoa, and additional
786 income to invest in their communities.

787 Appendix C: Company descriptions used in Study 3b

788 Conventional condition. 'Duskin' is a British company, which produces a range of fruit juices. To
789 compete on the market, the company imports the fruit necessary for the juice production from
790 various countries, looking at the best price possible. It also sells the ready juice across the UK and
791 Europe, and is currently looking to expand its markets to Australia and New Zealand.

792 Locally produced condition. 'Duskin' is a British company, which produces a range of fruit juices. To
793 limit its carbon footprint as much as possible, the company only uses locally produced fruit in its
794 production and sells the ready juice only to local shop owners and farmers' markets.

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802 **References**

- 803 Andreoni, J. (1989). Giving with impure altruism: Applications to charity and Ricardian equivalence.
804 *Journal of Political Economy*, 97, 1447–1458.
- 805 Andreoni, J. (1990). Impure altruism and donations to public goods: a theory of warm-glow giving.
806 *Economic Journal*, 100, 464–477.
- 807 Andreoni, J. (1993). An experimental test of the public-goods crowding-out hypothesis. *American*
808 *Economic Review*, 83, 1317–1327.
- 809 Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision*
810 *Processes*, 50(2), 179-211. doi: 10.1016/0749-5978(91)90020-t
- 811 Ajzen, I., Brown, T. C., & Carvajal, F. (2004). Explaining the discrepancy between intentions and
812 actions: The case of hypothetical bias in contingent valuation. *Society for Personality and*
813 *Social Psychology*, 30, 1108– 1121.
- 814 Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L., & Shepherd, R. (2008).
815 Predicting intentions to purchase organic food: The role of affective and moral attitudes in
816 the Theory of Planned Behaviour. *Appetite*, 50(2–3), 443-454. doi:
817 10.1016/j.appet.2007.09.010
- 818 ATKearney (2013). Buying into the local food market. Retrieved 24 July 2014 from
819 [http://www.atkearney.com/documents/10192/709903/Buying+into+the+Local+Food+Move](http://www.atkearney.com/documents/10192/709903/Buying+into+the+Local+Food+Movement.pdf/68091049-b5c2-4d2a-a770-ee5b703da8fd)
820 [ment.pdf/68091049-b5c2-4d2a-a770-ee5b703da8fd](http://www.atkearney.com/documents/10192/709903/Buying+into+the+Local+Food+Movement.pdf/68091049-b5c2-4d2a-a770-ee5b703da8fd)
- 821 Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107(2),
822 238-246. doi: 10.1037/0033-2909.106.2.315
- 823 Byrne, B. M. (2004). Testing for multigroup invariance using AMOS graphics: A road less traveled.
824 *Structural Equation Modeling*, 11(2), 272-300. doi: 10.1080/10705519909540118.
- 825 Carrington, M., Neville, B., & Whitwell, G. (2010). Why ethical consumers don't walk their talk:
826 Towards a framework for understanding the gap between the ethical purchase intentions

RUNNING HEAD: TASTE AND MORALITY

- 827 and actual buying behaviour of ethically minded consumers. *Journal of Business Ethics*, 97,
828 139–158.
- 829
830 Chib, V. S., Rangel, A., Shimojo, S., & O’Doherty, J. P. (2009). Evidence for a common representation
831 of decision values for dissimilar goods in human ventromedial prefrontal cortex. *The Journal*
832 *of Neuroscience*, 29(39), 12315-12320. doi: 10.1163/156856897x00357
- 833 Coppin, G., & Sander, D. (2011). The flexibility of chemosensory preferences. In R. J. Dolan & T.
834 Sharot (Eds.), *The neuroscience of preference and choice* (pp. 257-275). Elsevier Academic
835 Press.
- 836 Cova, B., & Pace, S. (2006). Brand community of convenience products: new forms of customer
837 empowerment – the case “my Nutella The Community”. *European Journal of Marketing*,
838 40(9/10), 1087 - 1105. doi: 10.1108/03090560610681023
- 839 de Groot, J. I. M., & Steg, L. (2008). Value orientations to explain beliefs related to environmental
840 significant behavior. *Environment and Behavior*, 40(3), 330-354. doi:
841 10.1177/0013916506297831
- 842 Day-Farnsworth, L., McCown, B., Miller, M., & Pfeiffer, A. (2009). Scaling up: Meeting the demand
843 for local food. Retrieved 23 July 2014 from [http://www.cias.wisc.edu/wp-](http://www.cias.wisc.edu/wp-content/uploads/2010/01/baldwin_web_final.pdf)
844 [content/uploads/2010/01/baldwin_web_final.pdf](http://www.cias.wisc.edu/wp-content/uploads/2010/01/baldwin_web_final.pdf)
- 845 Defra. (2008). A framework for pro-environmental behaviours Department for Environment and Rural
846 Affairs. London. Retrieved 24 July from
847 [https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69277/pb](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69277/pb13574-behaviours-report-080110.pdf)
848 [13574-behaviours-report-080110.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69277/pb13574-behaviours-report-080110.pdf)
- 849 Defra. (2011). Household waste recycling, my material - the UK. Retrieved 23 July 2014 from
850 [http://webarchive.nationalarchives.gov.uk/20130123162956/http://www.defra.gov.uk/statis](http://webarchive.nationalarchives.gov.uk/20130123162956/http://www.defra.gov.uk/statistics/environment/waste/wrfg15-hhmaterial/)
851 [tics/environment/waste/wrfg15-hhmaterial/](http://webarchive.nationalarchives.gov.uk/20130123162956/http://www.defra.gov.uk/statistics/environment/waste/wrfg15-hhmaterial/)

RUNNING HEAD: TASTE AND MORALITY

- 852 EuropeanCommission. (2005).Organic farming in the European Union: Facts and Figures. Retrieved
853 24 July 2014 from <http://www.env->
854 [edu.gr/Documents/Organic%20farming%20in%20the%20EU.pdf](http://www.env-)
- 855 FairTradeFoundation. (2011). Facts and figures. Retrieved 9 September 2012 from
856 http://www.fairtrade.org.uk/what_is_fairtrade/facts_and_figures.aspx
- 857 FairTradeInternational. (2013). Unlocking the power. Annual report 2012-13. Retrieved 23 July
858 2014, from http://www.fairtrade.net/fileadmin/user_upload/content/2009/resources/2012-
859 [13_AnnualReport_FairtradeIntl_web.pdf](http://www.fairtrade.net/fileadmin/user_upload/content/2009/resources/2012-)
- 860 Glanz, K., Basil, M., Maibach, E., Goldberg, J., & Snyder, D. A. N. (1998). Why Americans eat what
861 they do: Taste, nutrition, cost, convenience, and weight control concerns as influences on
862 food consumption. *Journal of the American Dietetic Association*, 98(10), 1118-1126. doi:
863 10.1016/s0002-8223(98)00260-0
- 864 Grankvist, G., & Biel, A. (2007). Predictors of purchase of eco-labelled food products: A panel study.
865 *Food Quality and Preference*, 18(4), 701-708. doi: 10.1016/j.foodqual.2006.11.002
- 866 Grankvist, G., Lekedal, H., & Marmendal, M. (2007). Values and eco- and fair-trade labelled products.
867 *British Food Journal*, 109(2), 169-181. doi: 10.1108/00070700710725527
- 868 Harbaugh, W. T., Mayr, U., & Burghart, D. R. (2007). Neural responses to taxation and voluntary
869 giving reveal motives for charitable donations. *Science*, 316(5831), 1622-1625. doi:
870 10.1126/science.1140738
- 871 Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium.
872 *Communication Monographs*, 76(4), 408-420. doi: 10.1080/03637750903310360
- 873 Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation,
874 moderation, and conditional process modeling [White paper].Retrieved 24 July 2014 from
875 <http://www.afhayes.com/public/process2012.pdf>

RUNNING HEAD: TASTE AND MORALITY

- 876 Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis:
877 Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55. doi:
878 10.1080/10705519909540118
- 879 Johansson, L., Haglund, Å., Berglund, L., Lea, P., & Risvik, E. (1999). Preference for tomatoes, affected
880 by sensory attributes and information about growth conditions. *Food Quality and*
881 *Preference*, 10(4-5), 289-298. doi: 10.1016/s0950-3293(99)00022-1
- 882 Kaiser, F. G., & Wilson, M. (2004). Goal-directed conservation behavior: the specific composition of a
883 general performance. *Personality and Individual Differences*, 36(7), 1531-1544. doi:
884 10.1016/j.paid.2003.06.003
- 885 Kahneman, D., & Knetsch, J.L. (1992). Valuing public goods: The purchase of moral satisfaction.
886 *Journal of Environmental Economics and Management*, 22, 57-70.
- 887 Kim, H., Shimojo, S., & O'Doherty, J. P. (2011). Overlapping responses for the expectation of juice
888 and money rewards in human ventromedial prefrontal cortex. *Cerebral Cortex*, 21(4), 769-
889 776. doi: 10.1093/cercor/bhp092
- 890 Lee, L., Frederick, S., & Ariely, D. (2006). Try It, you'll like It: The influence of expectation,
891 consumption, and revelation on preferences for beer. *Psychological Science* 17(12), 1054-
892 1058.
- 893 MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*. New York, NY: Taylor &
894 Francis Group/Lawrence Erlbaum Associates, New York, NY.
- 895 Magnusson, M. K., Arvola, A., Koivisto Hursti, U. K., Aberg, L., & Sjoden, P. O. (2001). Attitudes
896 towards organic foods among Swedish consumers. *British Food Journal*, 103(3), 209-227.
- 897 Maio, G. R., & Olson, J. M. (1998). Values as truisms: Evidence and implications. *Journal of*
898 *Personality and Social Psychology*, 74(2), 294-311. doi: 10.1037/0022-3514.74.2.294
- 899 McClure, S. M., Li, J., Tomlin, D., Cypert, K. S., Montague, L. M., & Montague, P. R. (2004). Neural
900 correlates of behavioral preference for culturally familiar drinks. *Neuron*, 44(2), 379-387.
901 doi: 10.1016/j.neuron.2004.09.019

RUNNING HEAD: TASTE AND MORALITY

- 902 Paasovaara, R., Luomala, H. T., Pohjanheimo, T., & Sandell, M. (2012). Understanding consumers'
903 brand-induced food taste perception: A comparison of 'brand familiarity' – and 'consumer
904 value – brand symbolism (in)congruity' – accounts. *Journal of Consumer Behaviour*, 11(1),
905 11-20. doi: 10.1002/cb.356
- 906 Plassmann, H., O'Doherty, J., Shiv, B., & Rangel, A. (2008). Marketing actions can modulate neural
907 representations of experienced pleasantness. *PNAS Proceedings of the National Academy of
908 Sciences of the United States of America*, 105(3), 1050-1054. doi: 10.1073/pnas.0706929105
- 909 Robinson, T. N., Borzekowski, D. G., Matheson, D. M., & Kraemer, H. C. (2007). Effects of fast food
910 branding on young children's taste preferences. *Archives of Pediatrics & Adolescent
911 Medicine*, 161(8), 792-797. doi: 10.1001/archpedi.161.8.792
- 912 Rokeach, M. (1973). *The nature of human values*. New York: Free Press.
- 913 Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation analysis in social
914 psychology: Current practices and new recommendations. *Social and Personality Psychology
915 Compass*, 5(6), 359-371. doi: 10.1111/j.1751-9004.2011.00355.x
- 916 Schultz, W. P., & Zelezny, L. (1999). Values as predictors of environmental attitudes: Evidence for
917 consistency across 14 countries. *Journal of Environmental Psychology*, 19(3), 255-265. doi:
918 10.1006/jevp.1999.0129
- 919 Schwartz, S. H. (1992). The universal content and structure of values: Theoretical advances and
920 empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social
921 psychology* (Vol. 25, pp. 1-65). New York: Academic Press.
- 922 Shaw, D., & Shiu, E. (2002). An assessment of ethical obligation and self-identity in ethical consumer
923 decision-making: a structural equation modelling approach. *International Journal of
924 Consumer Studies*, 26(4), 286-293. doi: 10.1046/j.1470-6431.2002.00255.x
- 925 Sheppard, B. H., Hartwick, J., & Warshaw, P. R. (1988). *The Theory of Reasoned Action: A Meta-
926 Analysis of Past Research with Recommendations for Modifications and Future Research*.
927 *Journal of Consumer Research*, 15, 325-43.

RUNNING HEAD: TASTE AND MORALITY

- 928 Siegrist, M., & Cousin, M.-E. (2009). Expectations influence sensory experience in a wine tasting.
929 *Appetite*, 52(3), 762-765. doi: 10.1016/j.appet.2009.02.002
- 930 SoilAssociation. (2010). Organic market report 2010. Retrieved 23 July 2014 from
931 <http://www.soilassociation.org/LinkClick.aspx?fileticket=bTXno01MTtM%3d&tabid=116>
- 932 Stern, P. C., Kalof, L., Dietz, T., & Guagnano, G. A. (1995). Values, Beliefs, and Proenvironmental
933 Action: Attitude Formation Toward Emergent Attitude Objects1. *Journal of Applied Social*
934 *Psychology*, 25(18), 1611-1636. doi: 10.1111/j.1559-1816.1995.tb02636.x
- 935 UK Giving. (2011). An overview of charitable giving in the UK.: Charities Aid Foundation.
- 936 Wansink, B., van Ittersum, K., & Painter, J. E. (2005). How descriptive food names bias sensory
937 perceptions in restaurants. *Food Quality and Preference*, 16(5), 393-400. doi:
938 10.1016/j.foodqual.2004.06.005
- 939 Wertenbroch, K., & Skiera, B. (2002). Measuring Consumers' Willingness to Pay at the Point of
940 Purchase. *Journal of Marketing Research (JMR)*, 39(2), 228-241.
- 941 Willer, H. & Lernoud, J. (2013). The world of organic agriculture: The results from the latest survey
942 on organic agriculture worldwide. Retrieved 23 July 2014 from
943 <http://orgprints.org/22324/1/willer-lernoud-2013-world-of-organic.pdf>
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955 Table 1

956 *Descriptive statistics of the variables included in the path model.*

Measures for TS	Denmark n=550	Finland n=508	Germany n=503	Greece n=521	Italy n=500	Spain n=503	Sweden n=576	UK n=500
TS better for environment ¹	5.38 (1.49)	5.66 (1.34)	5.19 (1.48)	5.56 (1.50)	5.27 (1.47)	5.60 (1.39)	5.39 (1.48)	5.35 (1.44)
TS tastes better ²	4.32 (1.54)	4.77 (1.53)	4.60 (1.63)	5.39 (1.66)	4.72 (1.57)	5.23 (1.56)	4.10 (1.62)	4.81 (1.56)
Moral satisfaction ³	4.47 (1.79)	4.78 (1.33)	3.98 (1.49)	4.72 (1.53)	4.60 (1.48)	4.79 (1.37)	4.86 (1.52)	4.58 (1.33)
Intentions to buy TS ⁴	3.39 (1.80)	4.00 (1.65)	3.68 (1.77)	4.80 (1.60)	4.45 (1.79)	4.54 (1.49)	3.93 (1.79)	4.23 (1.57)

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958 Note. The values represent the mean scores and standard deviations (in brackets) of each measure

959 used in the analyses. Scale anchors: ^{1,2}1=Extremely unlikely; 7=Extremely likely; ³1=Strongly960 disagree; 7=Strongly agree; ⁴1=Definitely will not buy organic instead of conventional TS;

961 7=Definitely will buy organic instead of conventional TS.

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964 Table 2.

965 *Standardized regression weights in the path-model by country (Study 1).*

Path	Italy	Denmark	Finland	UK	Greece	Spain	Germany	Sweden
Organic TS better for environment -> Moral satisfaction	.54***	.48***	.56***	.56***	.58***	.41***	.44***	.51***
Organic TS better for environment -> Taste expectation	.24***	.29***	.31***	.38***	.51***	.42***	.35***	.23***
Moral satisfaction -> Taste expectation	.44***	.37***	.40***	.33***	.24***	.26***	.29***	.39***
Moral satisfaction -> Intentions to buy organic TS	.63***	.50***	.40***	.61***	.57***	.53***	.50***	.44***
Taste expectations -> Intentions to buy organic TS	.14***	.22***	.34***	.21***	.10*	.08 [†]	.24***	.26***
Organic TS better for environment -> Intentions to buy organic TS	.06	.05	-.03	-.001	.07	.15***	.08*	.08*

974 Note. *** p < .001. **p < .01. *p < .05. [†]p < .10.

975 Table 3

976 *Organic biscuits: descriptive statistics and analysis of variance test (Study 2)*

Measure	Environmentally harmful company n = 59	Environmentally friendly company n = 53	df	t	p	Cohen's d
Mood	4.24 (1.11)	4.55 (1.32)	109	1.34	.183	0.25
Chocolate quality	3.54 (1.05)	4.16 (1.16)	106	2.88	.005	0.56
Moral satisfaction	2.09 (0.88)	4.49 (1.31)	109	11.44	.000	2.15
Expectations of taste	4.04 (0.86)	4.55 (0.88)	108	3.09	.003	0.59
Taste	4.81 (1.24)	5.20 (1.24)	110	1.65	.102	0.31
Intentions to buy	3.39 (1.65)	4.38 (1.76)	110	2.12	.037	0.58

977 *Note.* The values represent the means and standard deviations (in brackets) of the variables
978 included in the analyses. Independent sample *t*-test was used to test for statistical
979 significance of the differences in each measure obtained as a function of condition. The
980 degrees of freedom vary due to missing data.

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993 Table 4

994 *Chocolate 'Morena': descriptive statistics and analysis of variance (Study 3a)*

Measure	Conventional (n=25)	Fair Trade (n=25)	df	t	p	Cohen's d
Moral satisfaction	2.56 (1.15)	4.72 (1.36)	48	6.06	.000	1.72
Expectations of taste	4.64 (1.26)	5.20 (1.28)	48	1.56	.126	0.44
Taste	5.74 (1.21)	6.22 (0.74)	48	1.70	.096	0.48
WTP (in £)	1.28 (0.93)	1.52 (0.71)	48	1.05	.301	0.29
WTP (in £)*	1.04 (0.47)	1.52 (0.71)	46	2.75	.008	0.80

995 *Note:* The values represent the means and standard deviations (in brackets) of the variables

996 included in the analyses. Independent sample t-test was used to test for statistical

997 significance of the differences in each measure obtained as a function of condition.

998 *After removing two extreme outliers (values exceeding 3SD above the mean) in the

999 conventional condition, the difference in WTP between conditions became highly

1000 significant.

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1013 Table 5

1014 *Apple juice 'Duskin': descriptive statistics and analysis of variance (Study 3b)*

Measure	Conventional (n=25)	Local (n=25)	df	t	p	Cohen's d
Moral satisfaction	3.62 (1.21)	4.48 (1.46)	48	2.27	.028	0.64
Expectations of taste	5.00 (0.88)	5.44 (1.06)	48	1.60	.117	0.45
Taste	5.50 (1.48)	5.02 (1.72)	48	1.06	.276	0.30
WTP (in £)	1.86 (0.87)	1.60 (0.68)	48	1.19	.240	0.33

1015 *Note:* The values represent the means and standard deviations (in brackets) of the variables

1016 included in the analyses. Independent sample t-test was used to test for statistical

1017 significance of the differences in each measure obtained as a function of condition.

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1030 Table 6

1031 *Results from moderated mediation analysis in Study 3a and 3b examining the mediation*
 1032 *effect of moral satisfaction on taste expectations for low, moderate, and high level of*
 1033 *altruistic/biospheric value endorsement as the moderator.*

Level of the moderator	Study 3a			Study 3b		
	Altruistic values	<i>B</i>	95% CIs	Biospheric values	<i>B</i>	95% CIs
M-1SD	4.66	.40	-0.07; 1.42	3.45	.01	-0.25; 0.29
M	5.74	.76*	0.31; 1.67	4.83	.20*	0.03; 0.57
M+1SD	6.82	1.12*	0.35; 1.87	6.21	.39*	0.05; 1.08

1034 *Note.* *B* is the unstandardized coefficient from a moderated mediation analysis, depicting
 1035 the effect of moral satisfaction on taste expectations for each of level of the moderator. The
 1036 95% CIs are the bias corrected and accelerated confidence intervals obtained with 1000 re-
 1037 samplings. * $p < .05$.

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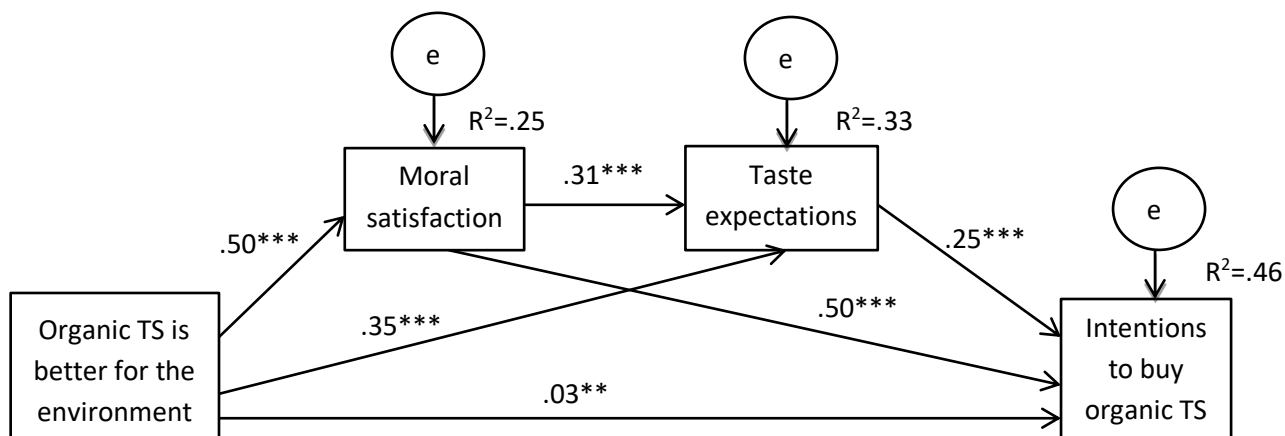
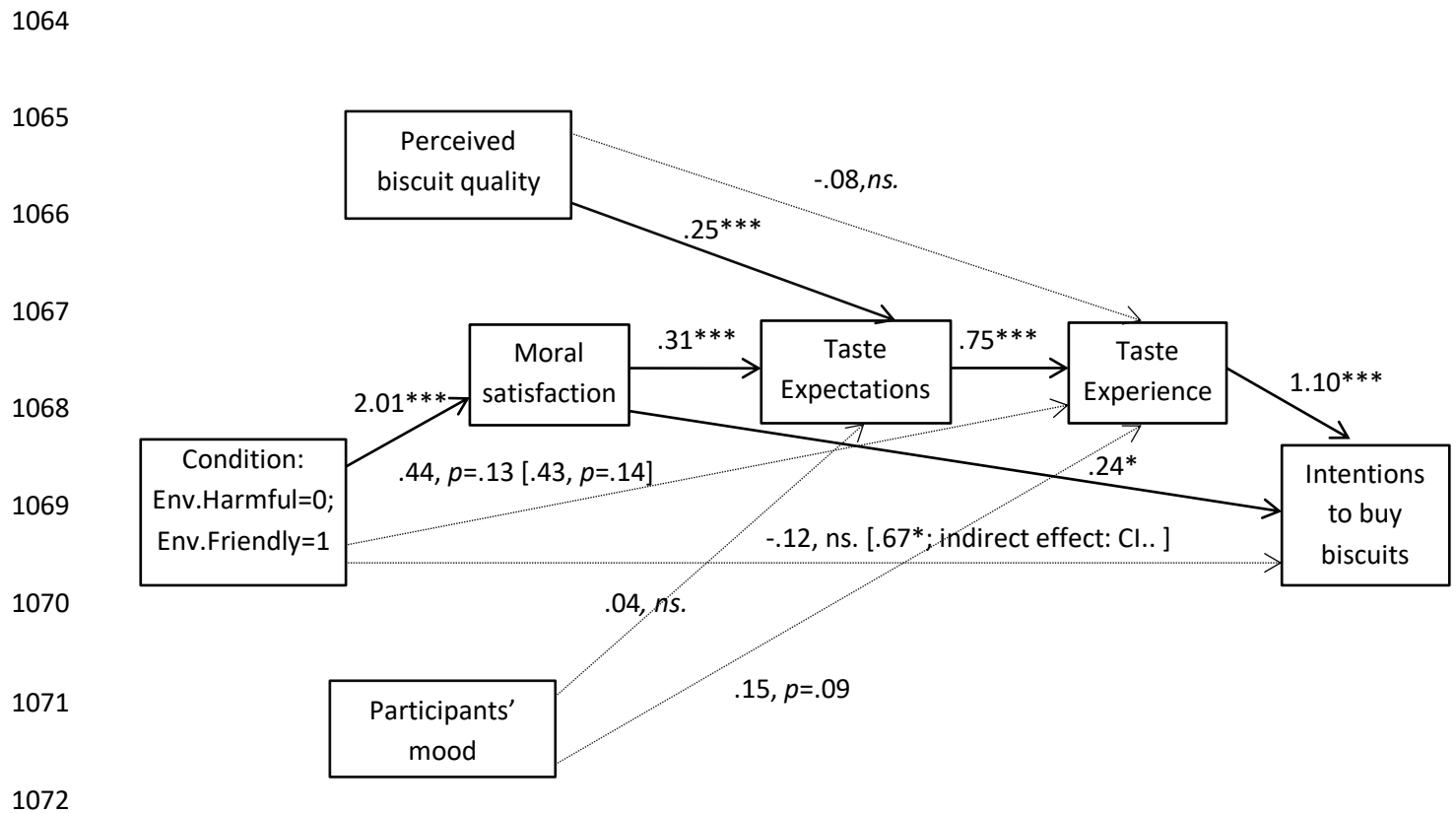


Figure 1. Path model predicting expected taste and intention to buy organic tomato sauce in the total sample (N = 4061) for Study 1. Note. Coefficients are standardized β -coefficients. ** $p < .01$; *** $p < .001$.



1073 Figure 2. A diagram summarizing the results from a serial mediation model testing the effect of

1074 condition on taste experience as an outcome variable through moral satisfaction and taste

1075 expectations, and a serial mediation model testing the effect of condition on intentions to buy as an

1076 outcome variable, through moral gain, taste expectations and experience for Study 2. The effects of

1077 perceived biscuits quality and participants mood were also included in both models, and the

1078 reported B-coefficients are the estimated path coefficients while accounting for these effects. The

1079 numbers in the brackets are the B-coefficients of the effect of condition on the outcome variables

1080 before the inclusion of the mediators. Note. *** $p < .001$. ** $p < .01$. * $p < .05$.

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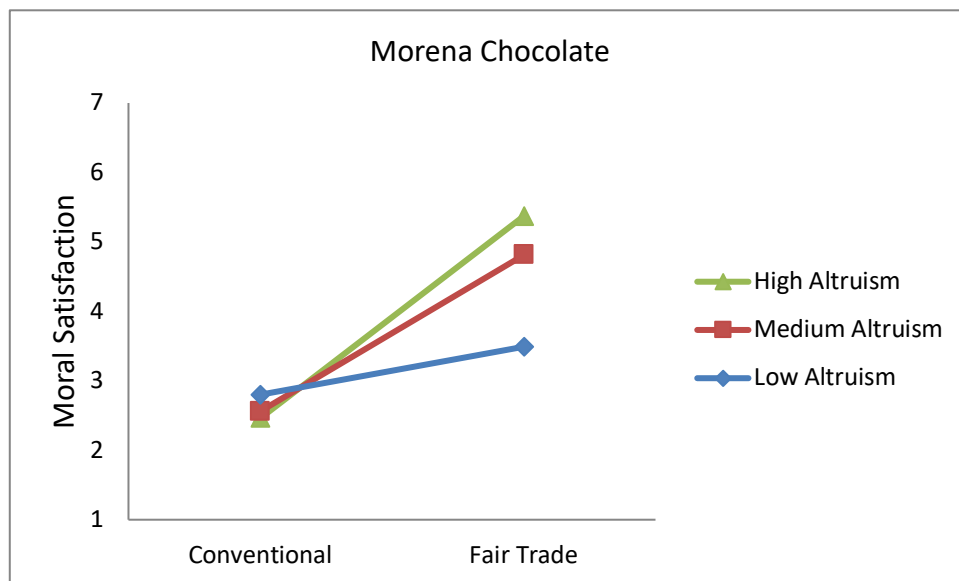
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1090 Figure 3. Simple slopes for the effect of fair trade (vs. conventional) condition on moral satisfaction

1091 for the 10th, 50th, and 90th percentiles on altruism (Study 3a).

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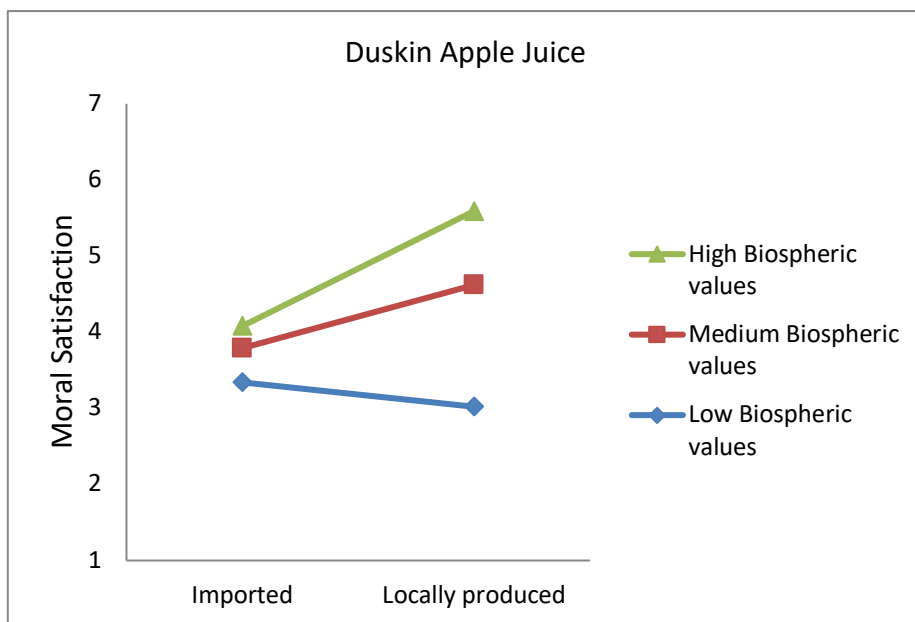
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1099 Figure 4. Simple slopes for the effect of locally produced (vs. imported) apple juice condition on
1100 moral satisfaction for the 10th, 50th, and 90th percentiles on biospheric values (Study 3b).

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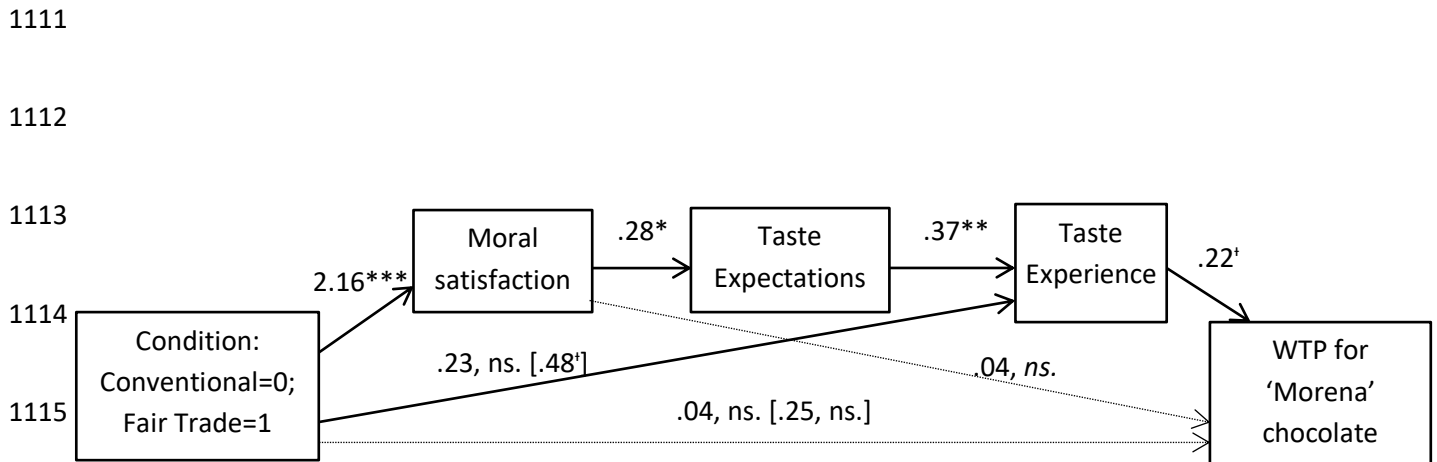
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1116 Figure 5. A diagram summarizing the findings from a serial mediation model testing for the indirect
 1117 effect of condition (Fair trade vs. conventional) on evaluation of the chocolate taste through moral
 1118 satisfaction and expectations of taste, and the indirect effect of condition on willingness to pay
 1119 (WTP) through moral satisfaction, expectations of taste, and taste path (Study 3a). The path
 1120 coefficients are the unstandardized Bs. The numbers in the brackets are the B-coefficients of the
 1121 effect of condition on the outcome variables before the inclusion of the mediators. Note. *** $p < .001$;
 1122 ** $p < .01$; * $p < .05$; † $p < .10$

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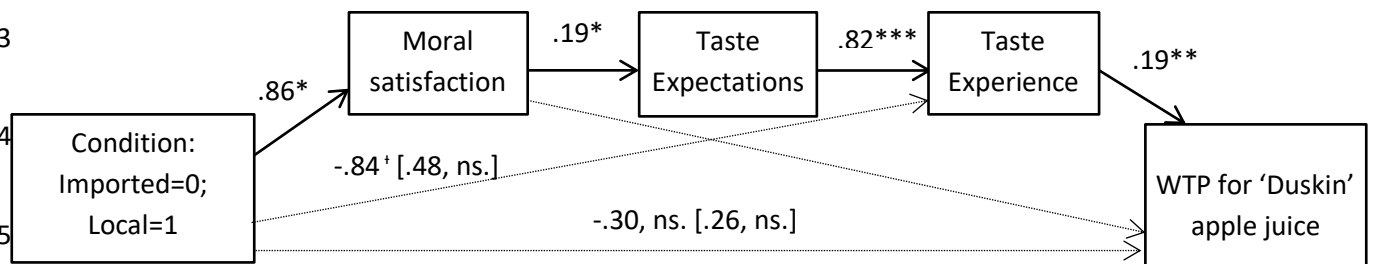
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Figure 6. A diagram summarizing the findings from a serial mediation model testing for the indirect effect of condition (locally produced vs. imported apple juice) on the experience of apple juice taste through moral satisfaction and taste expectations, and a model testing for an indirect effect of condition on willingness to pay (WTP) through moral satisfaction, taste expectations, and taste experience path (Study 3b). The path coefficients are the unstandardized Bs. The numbers in the brackets are the B-coefficients of the effect of condition on the outcome variables before the inclusion of the mediators. Note. $^{***}p < .001$; $^{**}p < .01$; $^{*}p < .05$. $^{\dagger}p < .10$.

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