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**“Sustainability” a semi-globalisable concept  
for international food marketing:  
Consumer expectations regarding sustainable food**

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## **Abstract**

Today’s global food production and consumption often stand in sharp contrast to the objectives of sustainable development. Sustainable food products, characterised by higher environmental or ethical standards than conventional equivalents, are therefore an essential mean of addressing this global challenge. However, to ensure uptake of these products it is crucial for agri-food market actors to understand consumer expectations regarding sustainable food, so they can appropriately tailor their differentiation and communication strategies. To explore these consumer expectations, data from an online survey in three industrialised (Germany, Switzerland, United States of America) and three emerging countries (Brazil, China, India) is used. The results show that consumers around the globe have quite diverse expectations regarding sustainable food products. Only very few attributes such as “environmental friendly production”, “no chemical pesticides”, “naturalness” and “safety” can be used to meet a range of international consumers’ expectations regarding sustainable food. International food marketers should thus try to get to know their consumers in each country better and learn how to address them specifically, i.e., by semi-global marketing strategies.

**Keywords:** sustainable food consumption; consumer expectations; international marketing; semi-globalisation

## **Topic:**

Value creation and innovative marketing strategies

## Introduction

Food systems around the globe contribute significantly to a number of environmental and ethical problems (Garnett, 2013; Reisch, Eberle, & Lorek, 2013). It is widely accepted that, if future global challenges such as i.e. resource depletion, pollution, loss of biodiversity, changing consumption patterns, issues of food safety and security are to be addressed, more environmentally and ethically sound food production and consumption is needed (Abeliotis, Konari, & Sardianou, 2010; Aikin, 2011 & 2014; Verain, Bartels, Dagevos, Sijtsema, Onwezen, & Antonides, 2012).

When looking at the transformation of global agri-food systems over the past few decades a shift towards higher value food, higher food quality and safety can be observed (de Haen & Requillart, 2014; Moomaw, Griffin, Kurczak, & Lomax, 2012; Regmi, 2001; Reisch et al., 2013). This development has primarily been induced by income growth, urbanisation, changes in demographics and values, as well as a better access to information (de Haen & Requillart; Moomaw et al., 2012; Regmi, 2001). When incomes rise, consumers shift their preferences from less expensive staple foods to higher-value products, and also demand higher food quality and safety (Moomaw et al., 2012; Regmi, 2001). Simultaneously, process characteristics such as environmental or ethical aspects have become increasingly important for consumers and in food marketing (Codron, Siriex, & Reardon, 2005; Franz, von Meyer, & Spiller, 2010; Grolleau & Caswell, 2006). The proliferation of certification schemes around the world making such credence attributes visible to consumers i.e. via labels shows the contemporary relevance of such sustainability attributes for differentiation on the global food market (Codron et al., 2005; Franz et al., 2010; Grolleau & Caswell, 2006; Jahn, Schramm, & Spiller, 2005). This development is best illustrated by the growing markets for organic or fair trade food (Fair Trade International, 2013; Sahota, 2013). Against this background food marketers have to address the questions, where and how to communicate sustainable food on a global level.

For several years now, attempts to improve the environmental and / or ethical situation along the food supply chain via differentiating strategies, certification or labelling initiatives have been summarised under the term “sustainability”. However, there is no exact definition for it and thus also the term “sustainable food” is open to a wide variety of interpretations. Some authors point out that this is one reason for the wide diffusion of the term. They call the underlying phenomenon a “bridging concept” (Schön et al., 2007).

As more and more food is marketed using this claim, it gains market momentum, but limited literature is available on consumer perceptions and the corresponding demand for sustainable food (Golden, 2010). Most studies deal with single credence attributes in individual countries, so that a clear picture of what consumers expect from sustainable food on a global scale is still missing (Verain et al., 2012).

From an international agri-food business perspective, it is, however, important to understand consumer expectations regarding sustainable food and its specific environmental and ethical attributes, in order to appropriately tailor marketing strategies (Grunert, 2005; Darby, Batte, Ernst, & Roe, 2008; Douglas & Craig, 2011; Garnett, 2013). Moreover, the growing demand for more sustainable food due to individual consumer, private or public sector interests has encouraged competition within the global agri-food business. Consequently, adequate and effective differentiation and communication strategies of food products with regard to their sustainability become crucial.

This explorative study therefore aims at giving insights for international agri-food market actors, about what consumers expect from sustainable food and where and how to address this by adequate marketing strategies, using a unique data set from an online consumer survey (N=1,179) in three industrialised (Germany, Switzerland, United States of America) and three emerging countries (Brazil, China, India).

## **Sustainable Food and international Marketing**

### *“Sustainability” as a differentiating attribute in food marketing*

Sustainability is increasingly recognised as a major issue for most industries, but especially in the agri-food sector it has become an important differentiation and marketing topic (Codron et al., 2005; Grunert, 2011; Reisch et al., 2013; Verain et al., 2012; Vermeier & Verbeke, 2006).

On the one hand, sustainable food products are in demand because environmentally conscious consumption as well as ethical responsibility play an increasingly important role for many consumers (i.e., BBMG, GlobeScan, & SustainAbility, 2012; National Geographic & GlobeScan, 2012; SustainAbility & GlobeScan, 2012). On the other hand, sustainability attributes also enable product differentiation and help agri-food businesses to increase the value of commodities (Codron et al., 2005; Dosi & Moretto, 2001; Mc Eachern & Mc Clean, 2002). Moreover,

demonstrated environmental and / or ethical responsibility can actively foster a positive corporate image (Carlson, Grove, Kangun, & Polonsky, 1996; Morris, Hastak, & Mazis, 1995).

Food can be differentiated according to many different aspects, of which traditional quality criteria, environmental friendliness and ethical aspects are the most relevant in the context of this paper. The category of traditional quality criteria comprises the most common differentiation aspects, such as the product price or the level of innovation, that influence the strategic positioning and can be easily identified by the consumer himself (Antle, 2001; Darby & Karni, 1973; Nelson, 1970). The two other categories (environmental and ethical aspects) open up an alternative way of differentiating products, namely according to process characteristics or credence attributes. These cannot be proven by the consumer himself. Instead, third-party certification and labelling is needed in order to transfer the credence attributes of i.e. organic production or fair trade into search attributes and to make them visible and considerable to consumers. This then enables the consumer to make conscious buying decisions (Jahn et al., 2005; Mc Cluskey, 2000).

Today environmental and ethical attributes are often used to differentiate food products and to communicate them as more sustainable. Most sustainable food products are, however, still niche products with small but continuously growing market shares (WFTO, 2013; Willer, Lernoud, & Home, 2013).

Organic food is one example for the differentiation of food products regarding their sustainability. According to the International Federation of Organic Agriculture Movements (IFOAM) organic agriculture is defined as *“a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic Agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved”*. The globally most important regulations for organic production are those of the EU and USA. They specify mainly, that organic food production may not use mineral fertilisers, chemical pesticides or genetically modified organisms, ensures the protection of natural resources, animal welfare and biodiversity. The global market share of organic food has grown enormously in recent years (Sahota, 2013; Willer et al., 2013). The most mature markets can be found in the EU (i.e. Germany, United Kingdom, Denmark) and the USA, where organic products are widely spread across various retail channels

(Sahota, 2013; Wier, Jensen, Andersen, & Millock, 2008). However, the growing interest in organic production is not limited to industrialised countries. Since several years, there has been an increase of production and also a growth in consumption especially in urban centres of emerging countries in Latin America (i.e., Costa Rica, Brazil, Chile) and Asia (i.e., Thailand or India) (Eguillor Recabarren, 2009; Flores, 2013; Garibay & Ugas, 2009; Kung Wai, 2013).

Apart from the environmental aspects that play a major role in the differentiation of organic food, ethical aspects are equally important for sustainable food. Fair trade movements are an example for ethical engagement in trade relationships that not only focus on monetary profit maximisation, but aim at a *“trading partnership, based on dialogue, transparency and respect, that seek greater equity in international trade. Fair trade contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalised producers and workers – especially in the south”* (WFTO, 2013). The most well-known label for fair trade food is Fair Trade, offering fair prices for producers, good working conditions and guarantees not to involve child labour. Its sales have been growing for many years and its most prominent products such as coffee, chocolate and orange juice have already entered conventional supermarket shelves, not only in industrialised but also in emerging countries like in India or Kenya (FLO Fairtrade International, 2013; Henseleit, 2012; v. Meyer-Höfer & Spiller, 2013).

These examples of two major sustainability differentiation aspects for food (environmental / ethical attributes) show that there are a number of different attributes that can be used for the differentiation of sustainable food, too.

The above-mentioned examples hint at a need to revise one old and widespread conventional wisdom that in emerging and developing countries consumers are purely seeking to satisfy their basic material needs without caring about the environmental or ethical aspects of their consumption. For many years, it was asserted that consumers' environmental concern and the “postmaterialist”-value of environmental protection was limited to affluent nations (Dunlap & York, 2008, p. 529; Ingelhart, 1977). However, in recent years this view has been challenged by the results of several studies (i.e., Health of the Planet survey in 1992; World Value Surveys). Especially the results of the “Health of the Planet” (HOP) survey revealed high inconsistencies and several negative correlations between national affluence and environmental concern. This suggests, in accordance with other studies reviewed in Dunlap and York (2008), that

environmental and ethical concern among consumers has become a global phenomenon that is not predictable by a nation's affluence.

Although a number of studies have already analysed consumer attitudes, behaviour and characteristics of potential target groups for sustainable food, to our best knowledge, no study has so far analysed consumer expectations towards different sustainability aspects simultaneously in several countries of different economic development status. Most of the available studies analyse single aspects of sustainable food consumption, and the majority of these focus on environmentally friendly or organic consumption (i.e. Aertsens, Verbeke, Mondelaers, & van Huylenbroeck, 2009; Honkanen, Verplanken, & Olsen, 2006; Loureiro, Mc Cluskey & Mittelhammer, 2001; Roberts, 1996). Far fewer studies look at ethical aspects of consumption such as fair trade (i.e. Adams & Raisborough, 2010; Mc Cluskey, Durham, & Horn, 2009) or animal welfare (i.e. Honkanen & Olsen, 2009; Lagerkvist & Hess, 2011).

The question which sustainability aspects agri-food market actors should focus on when marketing sustainable food products on the global food market, has not yet been addressed. This paper therefore analyses consumer expectations regarding sustainable food in industrialised and emerging countries using a list of environmental, ethical and traditional food quality attributes.

### *Global marketing strategies for sustainable food*

The second crucial question for international agri-food market actors marketing sustainable food products is, where and how to communicate sustainable food effectively. Is it possible to use the same attributes for communicating sustainable food on a global scale or is it necessary to differentiate among countries?

One of the critical challenges that marketers face today is globalisation (Douglas & Craig, 2011; Ko, Taylor, Sung, Lee, Wagner, Navarro & Wang, 2012). This leads to expanding business operations on a global scale of firms from all parts of the world, which is especially true for firms that are looking for new growth opportunities outside the developed markets of the “industrial triad” (USA, Europe, Japan). They focus on expansion into new markets of the emerging countries like India, Brazil or China, where in particular the more affluent members of the growing urban middle-class provide a prime target group (Douglas & Craig, 2011).



Meanwhile, there is a growing global consumer culture (Alden, Steenkamp & Batra, 2006; Miller, 1998; Shermach, 1995; Ter Hofstede, Steenkamp & Wedel, 1999). The increased and accelerated exchange of information, goods and people across national boundaries leads to the emergence of global consumer segments. These are today no longer limited to industrialised countries, but start to expand globally. Besides commonly known global segments for luxury, fashion or music there are also global segments of environmentally and or ethically concerned consumers (Craig & Douglas, 2006; Court & Narasimahan, 2010; Douglas & Craig, 2011; Miller, 1998; Shermach, 1995). Examples of firms aiming to attract these segments are i.e. The Body Shop or Aveda (cosmetics), but there is also a number of individual fair trade stores, organic retailers or shops (Douglas & Craig, 2011).

However, the emerging markets outside the “industrial triad” may differ from the developed and mature markets in the industrialised countries. This requires an improved understanding of the differences in consumers’ needs, interests, attitudes and behaviours, but often such data is not available for the emerging countries (Douglas & Craig, 2011). Moreover, there is a lack of cross-country studies in this field.

The above described circumstances imply the need for changes in the common marketing strategies of firms. It includes adapting to a broader focus, especially with regard to their market segmentation (Ghemawat 2010), with which they can subdivide heterogeneous markets into homogeneous groups of consumers (Foedermayr & Diamantopoulos, 2008; Hassan & Katsanis, 1994; Hassan, Craft & Kortam, 2003). Traditionally, global markets have been segmented with the help of geographic and economic characteristics on a country-by-country basis (Ko et al., 2011). In recent years, however, marketing is focusing on meeting the needs in interrelated markets worldwide rather than organising operations on a country-by-country basis (Douglas & Craig, 2011; Steenkamp & Ter Hofstede, 2002). Despite the above described changes in the world markets, marketing practice literature remains often limited on issues regarding the development of global marketing strategies focussing on industrialised countries rather than displaying the potential of alternative approaches (Douglas & Craig, 2011; Ko, Taylor, Sung, Lee, Wagner, Navarro & Wang, 2012).

One interesting idea to expand marketing across markets with different maturity is presented by Douglas and Craig (2011). They advocate developing a semi-global marketing strategy, which means to follow different directions in different parts of the world. In contrast to Ghemawat

(2003), who uses the term “semiglobalization” to indicate that markets are typically regional rather than global, Douglas and Craig (2011) use the term to indicate that some markets are truly global, while others are much more fragmented, requiring unique strategies. According to them some markets can be targeted on a global scale, because consumers such as ecologically concerned consumers have similar preferences and response patterns worldwide. Only a small amount of local adaptation would be required, but this would have to be carefully inserted into the local context, i.e. due to cultural factors. With regard to the large emerging markets of the so called BRIC countries (Brazil, Russia, India, China) the authors propose, the development of country-centric marketing strategies to be able to address specific local preferences, traditions and other features. Furthermore, they recommend developing independent strategies for each of the BRIC countries. Drawing also on Doctoroff’s (2005) results, Douglas & Craig, 2011 suggest that marketing communication should be adapted to each country.

## **Approach, Data and Methodology**

For the marketing of sustainable food, it is today important to get to know consumers’ expectations regarding sustainable food on a broad and global scale. The aim of this explorative study is thus to analyse the following research questions: 1. Which sustainability attributes are expected by consumers regarding food products? 2. Where should international agri-food market actors communicate sustainable food products how?

This analysis does not estimate the market potential for sustainable food in the analysed markets, nor can the results of this study be generalised to the entire globe. Rather, the objective is to detect and compare consumers’ expectations regarding sustainable food across a wide range of nations and to identify marketing strategies for sustainable food. Displaying consumer expectations towards sustainable food in a number of different countries can help market actors to appropriately tailor their product and target their markets on a national as well as international scale.

## *Data*

The data for his explorative study was collected in an online consumer survey conducted during July and August 2013 in three industrialised (Germany, United States of America, Switzerland) and three emerging countries (Brazil, China, India). The total number of respondents is 1,719 (N: GE= 288 CH=282; USA=290; BR=285; CN=295; IN=279). The participants were recruited by a private marketing research panel provider. Only respondents responsible for the majority of food shopping in their household took part in the survey.

Among the industrialised countries of the world, the United States of America, Germany and Switzerland were chosen. They represent leading markets for sustainable food products, in terms of production and consumption of i.e. organic food (Sahota, 2013) or fair trade products (Fair Trade, 2013). They also belong to the two continents that are among the economically most developed in the world.

The chosen emerging countries belong to the so called BRIC-nations (Brazil, Russia, India, China), which combine the location of the majority of the global population, land area and economic growth (O'Neill, 2001).

The sometimes rich diversity of cultures and languages within the studied countries could not fully be taken into account. Only respondents in Switzerland could choose between an English and a French version of the questionnaire. In Switzerland 70% of the population speak German, 20% French and 10% Italian. The two data sets are shown in the results part as separate samples. In India an English questionnaire was used for all respondents. In China a Mandarin questionnaire was used for the whole country. The questionnaire was originally designed in English, and then professionally translated into each of the languages. To ensure the quality of the translation, native speakers did a back-translation, before the questionnaires were pre-tested in each country.

The main reason for conducting an online survey was that this method means that data collection is not regionally restricted based on the mobility of the interviewer. Further advantages are lower costs and quicker response times compared to other survey methods (Weber and Bradley, 2006). In industrialised countries, online consumer surveys have become quite common in marketing research, but also in emerging and developing countries more and more online surveys are conducted with the help of private marketing research panel providers. The panel providers sent the link of the survey to their panel participants and they could respond to the questionnaire at

any time or place where they had internet access. The statements of the respondents were saved online and converted into SPSS files for the analysis. The average time spent for answering to the questionnaire lay between 14 (USA) and 20 (IN) minutes.

The total sample of 1,179 respondents (around 300 per country) is not representative to make general conclusions, because the sample is biased towards higher educated participants with higher incomes from urban centres compared to the averages of the analysed countries.

However, it is known that, socio-demographic characteristics often have only marginal effects on the consumption of sustainable food in industrialised countries (Anderson & Cunningham, 1972; Dagevos, 2005; Diamantopoulos et al., 2003; Dickson, 2001; Doran, 2009; Gil et al., 2000; Jain & Kaur, 2006; Loureiro & Lotade, 2005; Verain et al., 2012). In the context of emerging and developing countries, studies show, that richer and better educated consumers often have a significantly higher willingness to pay for food safety and quality (Gonzalez et al., 2009; Krishna & Qaim, 2008; Liu et al., 2009; Mergenthaler et al. 2009; Padilla-Bravo et al., 2007).

Even though simple generalisations may be misleading, it is likely that the biased samples of the analysed countries may therefore represent the potential target groups for sustainable food quite well. Table 1 gives an overview of the gender distribution and education level of the samples in the analysed counties.

Respondents of the questionnaire stated that they are mainly responsible for the food shopping in their household. Surprisingly, the samples show a majority of men in some countries, which might be due to the fact that in these countries men are more often registered in private marketing panels than women. Another reason might be that the filter was not set strictly enough for these countries, so that men that stated to be at least partly responsible for the food shopping might outbalance the share of women.

**Table 1: Sample Characteristics**

	<b>CH-F</b>	<b>CH-GER</b>	<b>GER</b>	<b>USA</b>	<b>BR</b>	<b>CN</b>	<b>IN</b>
<b>N</b>	<b>130</b>	<b>152</b>	<b>288</b>	<b>290</b>	<b>285</b>	<b>295</b>	<b>279</b>
<b>Female (%)</b>	48.5	47.4	56.6	68.3	44.9	41.4	29.0
<b>Male (%)</b>	51.5	52.6	43.4	31.7	55.1	58.6	71.0
<b>University degree completed (%)</b>	25.4	16.4	22.2	43.8	47.7	88.8	90.0

*Source: Own data, 2013*

## Study Design

The main question analysed in this study was the following: “Which characteristics should a sustainable food product have?” The answer options were on a seven point Likert Scale (1 = strongly disagree; 2 = disagree; 3 = somewhat disagree; 4 = neither agree nor disagree; 5 = somewhat agree 6 = agree; 7 = strongly agree). 24 items (Table 2) are used to find out what consumers expect from sustainable food.

To provide a comprehensive presentation of these they are divided into three sub-groups including traditional quality criteria for food, environmental and ethical sustainability attributes.

**Table 2: Sustainability items grouped according to differentiating aspects**

Possible differentiation attributes	Sustainability items
<b>Environmental attributes</b>	<b>Environmentally friendly production</b>
	<b>Environmentally friendly packaging</b>
	<b>Reduction of greenhouse gas (GHG) emissions</b>
	<b>No genetically modified organisms (GMO)</b>
	<b>No synthetic fertiliser</b>
	<b>No chemical pesticides</b>
	<b>Seasonal production</b>
	<b>Local production</b>
	<b>Animal welfare</b>
<b>Ethical attributes</b>	<b>Fair prices for producers</b>
	<b>Good working &amp; living conditions for food producers</b>
	<b>No child labour</b>
	<b>Safety</b>
	<b>Health</b>
	<b>Naturalness</b>
	<b>No artificial additives</b>
	<b>Price (cheap for consumers)</b>
<b>Traditional attributes</b>	<b>Taste</b>
	<b>Freshness</b>
	<b>Nutritional value (high)</b>
	<b>Trendy</b>
	<b>Innovation</b>
	<b>Tradition</b>
	<b>Convenience</b>

Source: Own compilation, 2013

The division of the 24 tested variables shown in Table 2 is by no means exclusive or explicit, but rather a classic attempt to make the huge variety of attributes more comprehensible by grouping them according to the three basic sustainability dimensions (environmental, ethical, economic) (United Nations Environment Programme, 2010). “No GMO”, for example, is certainly an attribute used to differentiate sustainable food from conventional food, whether it is motivated from an environmental perspective (biodiversity) or from an ethical perspective (health / safety). The group of environmentally friendly attributes include most of the basic criteria required for organic products i.e. by the EU organic regulation 834/2007, such as “no use of chemical pesticides”, “no use of synthetic fertilisers”, and “no GMO”. Moreover, it contains more general aspects of environmentally friendly food production like i.e. environmentally friendly packaging, which is required by a number of eco-labels (i.e., EU-Eco-Label) and climate friendly aspects such as the reduction of greenhouse gas emissions.

The group of ethical attributes summarises social aspects such as those required for fair trade certification programs like “good working and living conditions and fair prices for producers”, but also ethical aspects such as “animal welfare”. Additionally it also contains health aspects (i.e., “safety”, “no artificial additives”) which play an important role for the sustainability of food consumption (Reisch et al. 2013).

Instead of including only pure economic aspects of food consumption like price into the analysis, the third group of tested variables contains a broader collection of traditional food quality (i.e., “taste”, “freshness”) and differentiation (i.e., “innovation”) aspects

### *Analysis*

The statistical analyses were done with SPSS. At first, the mean values of the 24 items were analysed (Table 3) and the top 10 in each of the six countries were identified (Table 4). An ANOVA-table was used to check the significance of the differences between the mean values.

An explorative factor analysis using the 24 items was performed for the total data set and for each country. The aim of a factor analysis is to reduce the number of data points and to determine the structure among a set of variables. On the basis of this multivariate technique, sets of interrelated variables, the so called factors, can be defined. They represent dimensions within the data (Hair et al., 2010). Principle component analysis was used and Varimax was chosen as rotation

method; a method of orthogonal rotation with the aim of maximising the dispersion of loadings within the factors (Field, 2009). On the one hand, it makes it easier to interpret the results in the exploratory stage of this research. On the other hand, a test using oblique rotation methods showed no differences in the result's contents.

As quality criterion, the Kaiser-Meyer-Olkin-Value (KMO) was used as a measure for the suitability of the sample for a factor analysis. The explained variance was also considered as indicator for the relevance of the result of the factor analysis. The Cronbach's Alpha was used as quality criterion for the reliability of the revealed factors. Factor loadings below 0.4 and items with double loadings are excluded from the final factor analysis results table (Table 5 and 6).

## **Results**

### *Results of mean value analysis*

The mean values of the 24 tested items were analysed and ranked for each of the data sets. Table 3 and 4 display the results. The higher the mean value (Table 3), the more consumers expect sustainable food to have the respective attributes characteristics. The items are presented according the three groups environmental, ethical and traditional food quality attributes.

Comparing the ranking of the top 10 mean values per country (Table 4) it becomes obvious which attributes matter most for consumers' expectations regarding sustainable food products and in which countries. Of all 24 items analysed in this study, only three are found among the top 10 mean values in all analysed seven data sets (shaded in Table 4). Two of them belong to the tested environmental attributes ("Environmental friendly production", "No chemical pesticides") the other one belongs to the tested ethical attributes ("Naturalness").

Consumers in six countries expect "Safety" (not among top 10 in CH) and "Freshness" (11<sup>th</sup> in BR) with regard to sustainable food products. "No child labour" is among the top 1-4 in CH, GE, USA and BR, but not among the top 10 in CN (13<sup>th</sup>) and IN (11<sup>th</sup>). "Health" is among the top 1-5 in the analysed emerging countries and the USA, but not in CH (13<sup>th</sup>) and GE (13<sup>th</sup>).

Some attributes are ranked among the top 10 only in a few / single countries, like "No GMO" (CH, GE, CN), "No synthetic fertiliser" (CH, GE, IN), "Reduction of GHG emissions" (BR) or "Seasonal production" (CH). Furthermore, some attributes are not found among the top 10 in any

of the analysed data sets. Most of these belong to the group of traditional food quality attributes like “Price” or “Innovation”.

While for the majority of items the mean values differ highly significantly between the seven data sets “Freshness” (.086), “No artificial additives” (.061), “No chemical pesticides” (.021) and “No GMO” (.008) show no significant difference.



**Table 3: Mean values, standard deviation and significance level of mean value differences**

	CH		GER		USA		BR		CN		IN		Sig.
	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	
Environmental attributes													
Environmental friendly production	6.13	.970	6.09	.944	5.88	1.194	6.13	.970	6.32	.773	6.11	.959	.000
Environmental friendly packaging	6.06	1.052	5.92	1.016	5.71	1.236	6.08	1.067	6.16	.867	6.10	1.014	.000
Reduction of GHG emissions	5.87	1.186	5.82	1.066	5.65	1.315	6.19	1.037	6.01	.956	5.92	1.108	.000
No GMO	5.97	1.352	6.02	1.316	5.77	1.426	5.91	1.999	6.15	1.036	5.89	1.232	.008
No synthetic fertiliser	5.98	1.241	5.89	1.224	5.80	1.364	5.99	1.184	6.14	.920	6.14	.970	.002
No chemical pesticides	6.16	1.113	6.31	1.005	6.03	1.240	6.19	1.115	6.28	.845	6.23	.962	.021
Seasonal production	5.98	1.083	5.80	1.114	5.50	1.150	5.27	1.285	5.60	1.185	5.75	1.157	.000
Local production	5.78	1.138	5.64	1.213	5.57	1.201	5.26	1.483	4.89	1.369	5.53	1.302	.000
Ethical attributes													
Animal welfare	6.07	1.116	5.88	1.157	5.77	1.294	6.15	1.014	5.65	1.092	5.85	1.143	.000
Fair prices for producers	5.91	1.062	5.88	1.007	5.82	1.193	6.17	.969	6.00	.810	5.95	1.036	.001
Good working conditions	5.94	1.014	5.86	1.003	5.79	1.231	6.22	.928	6.05	.829	6.03	.955	.000
No child labour	6.32	1.146	6.40	.982	6.12	1.264	6.33	1.149	6.01	.955	5.98	1.283	.000
Safety	5.90	1.117	5.92	1.044	6.37	.958	6.27	1.015	6.47	.764	6.24	.947	.000
Health	5.91	1.127	5.72	1.157	6.05	1.002	6.38	.849	6.48	.679	6.20	.988	.000
Naturalness	6.05	.988	5.88	1.034	5.86	1.111	6.21	.941	6.23	.866	6.18	.970	.000
No artificial additives	5.96	1.133	6.02	1.047	5.91	1.143	6.08	1.121	6.17	.974	5.97	1.064	.061
Traditional attributes													
Price (cheap for consumers)	4.88	1.545	4.30	1.357	4.93	1.413	5.81	1.359	5.00	1.375	5.40	1.293	.000
Taste	6.09	.962	6.20	.931	6.17	.988	6.02	1.206	5.84	1.009	6.11	.926	.000
Freshness	6.18	.896	6.25	.904	6.25	.968	6.12	.978	6.33	.759	6.33	.855	.086
Nutritional value	5.64	1.207	5.61	1.169	6.01	1.034	6.18	1.043	6.19	.800	6.19	.945	.000
Trendy	3.42	1.586	3.32	1.487	4.31	1.605	5.13	1.494	5.14	1.423	5.41	1.260	.000
Innovation	4.62	1.491	4.50	1.443	5.03	1.280	5.38	1.459	5.49	1.118	5.65	1.162	.000
Tradition	4.79	1.464	4.58	1.463	4.81	1.394	5.07	1.533	4.89	1.269	5.46	1.332	.000
Convenience	4.78	1.507	4.60	1.380	5.06	1.231	5.87	1.242	5.61	1.070	5.82	1.079	.000

Question: "Which characteristics should a sustainable food product have?"; Answer options: Likert Scale (1 = strongly disagree ... 7 = strongly agree)

MV = mean value; SD = standard deviation; Sig. = significance level of mean value difference

Source: Own calculations, 2014

**Table 4: Ranking of mean values in each country, focussing on top 10**

	CH		GER		USA		BR		CN		IN		Sig.
	MV	Rank	MV	Rank	MV	Rank	MV	Rank	MV	Rank	MV	Rank	
Environmental attributes													
Environmental friendly production	6,13	4	6,09	5	5,88	9	6,13	10	6,32	4	6,11	8	.000
Environmental friendly packaging	6,06	7	5,92	7	5,71	15	6,08	12	6,16	9	6,10	9	.000
Reduction of GHG emissions	5,87	15	5,82	11	5,65	16	6,19	6	6,01	13	5,92	14	.000
No GMO	5,97	10	6,02	6	5,77	14	5,91	15	6,15	10	5,89	15	.008
No synthetic fertiliser	5,98	9	5,89	8	5,80	12	5,99	14	6,14	11	6,14	7	.002
No chemical pesticides	6,16	3	6,31	2	6,03	6	6,19	6	6,28	5	6,23	3	.021
Seasonal production	5,98	9	5,80	12	5,50	18	5,27	19	5,60	18	5,75	18	.000
Local production	5,78	16	5,64	14	5,57	17	5,26	20	4,89	22	5,53	20	.000
Ethical attributes													
Animal welfare	6,07	6	5,88	9	5,77	14	6,15	9	5,65	16	5,85	16	.000
Fair prices for producers	5,91	13	5,88	9	5,82	11	6,17	8	6,00	14	5,95	13	.001
Good working conditions	5,94	12	5,86	10	5,79	13	6,22	4	6,05	12	6,03	10	.000
No child labour	6,32	1	6,40	1	6,12	4	6,33	2	6,01	13	5,98	11	.000
Safety	5,90	14	5,92	7	6,37	1	6,27	3	6,47	2	6,24	2	.000
Health	5,91	13	5,72	13	6,05	5	6,38	1	6,48	1	6,20	4	.000
Naturalness	6,05	8	5,88	9	5,86	10	6,21	5	6,23	6	6,18	6	.000
No artificial additives	5,96	11	6,02	6	5,91	8	6,08	12	6,17	8	5,97	12	.061
Traditional attributes													
Price (cheap for consumers)	4,88	18	4,30	19	4,93	21	5,81	17	5,00	21	5,40	23	.000
Taste	6,09	5	6,20	4	6,17	3	6,02	13	5,84	15	6,11	8	.000
Freshness	6,18	2	6,25	3	6,25	2	6,12	11	6,33	3	6,33	1	.086
Nutritional value	5,64	17	5,61	15	6,01	7	6,18	7	6,19	7	6,19	5	.000
Trendy	3,42	22	3,32	20	4,31	23	5,13	21	5,14	20	5,41	22	.000
Innovation	4,62	21	4,50	18	5,03	20	5,38	18	5,49	19	5,65	19	.000
Tradition	4,79	19	4,58	17	4,81	22	5,07	22	4,89	22	5,46	21	.000
Convenience	4,78	20	4,60	16	5,06	19	5,87	16	5,61	17	5,82	17	.000

Shaded figures: among top 10 mean values in all countries

Question: "Which characteristics should a sustainable food product have?"; Answer options: Likert Scale (1 = strongly disagree ... 7 = strongly agree)

Source: Own calculations, 2014

**Table 5: Results of exploratory factor analysis for industrialised countries**

	CH			GER					USA		
KMO; expl. Total variance	.942 ; 62%			.766 ; 71,5%					.913 ; 65%		
Factors	1	2	3	1	2	3	4	5	1	2	3
Factor names	Sustain- ability	Seasonal & local production	Trendy, innovative, convenient	Sustain- ability	Trendy, innovative, convenient	No GMO & syn. fertiliser + animal welf.	Tasty freshness	Seasonal & local production	Sustain- ability	Traditional food quality & health	Trendy, innovative, convenient
Cronbachs Alpha	.919	.796	.719	.821	.763	.748	.801	.817	.934	.809	.799
Explained variance	31%	17%	13%	19,5%	14%	14%	12%	12%	33%	18%	14%
Environmental attributes											
Env. friendly production									.834		
Env. friendly packaging				.621					.802		
Reduction of GHG emissions	.729			.727					.814		
No GMO	.798					.825			.672		
No synthetic fertiliser	.854					.815			.718		
No chemical pesticides	.837										
Seasonal production		.730						.887			
Local production		.718						.901			
Ethical attributes											
Animal welfare	.674					.631			.773		
Fair prices for producers				.872					.793		
Good working conditions				.818					.842		
No child labour									.667		
Safety	.541			.518							
Health	.584									.673	
Naturalness	.684										
No artificial additives	.851										
Traditional attributes											
Price (cheap for consumers)										.525	
Taste		.605					.844			.765	
Freshness		.692					.825			.820	
Nutritional value		.553								.744	
Trendy			.843		.836						.808
Innovation			.763		.819						.728
Tradition											.786
Convenience			.716		.761						.654

Source: Own calculations, 2014

**Table 6: Results of exploratory factor analysis for emerging countries**

	BR			CN				IN		
KMO; expl. Total variance	.899; 65%			.922; 60%				.902; 59%		
Factors	1	2	3	1	2	3	4	1	2	3
Factor names	Sustain- ability	Traditional production	Tasty, cheap & nutritious	Health & sustain- ability	Ethics & innovation	Seasonal & local production	Cheap, tasty & convenient	Healthy & nutritious	Sustain- ability	Modern local production
Cronbachs Alpha	.907	.790	.771	.886	.833	.713	.684	.858	.828	.728
Explained variance	30%	20%	15%	24%	16%	10%	10%	22%	21%	16%
Environmental attributes										
Env. friendly production	.815			.610						
Env. friendly packaging	.784									
Reduction of GHG emissions	.813				.493				.771	
No GMO		.456		.678						
No synthetic fertiliser									.778	
No chemical pesticides				.731						
Seasonal production		.741				.711				
Local production		.756				.756				.718
Ethical attributes										
Animal welfare					.599				.651	
Fair prices for producers	.825				.768					
Good working conditions	.811				.713				.605	
No child labour	.713				.688				.500	
Safety				.677				.771		
Health				.765				.788		
Naturalness				.710				.624		
No artificial additives				.735					.707	
Traditional attributes										
Price (cheap for consumers)			.788				.743			.581
Taste			.822				.729			
Freshness				.613				.718		
Nutritional value			.690	.646				.774		
Trendy		.736								.801
Innovation					.577					.752
Tradition		.766				.708				
Convenience							.691			

Source: Own calculations, 2014

### *Results of factor analysis*

The final solution of the factor analysis presented in Table 5 and 6 show five factors for Germany, four for China, all other countries have three factors. The KMO values lie between .766 (GER) and .924 (CH), The total explained variances range from 59% (IN) to 71.5% (GER), The individual factors explained variances vary between 10% (CN: factor 3; 4) and 33% (USA: factor 1). The Cronbachs Alpha values are all acceptable or high ranging between .684 (CN: factor 4) and .934 (USA: factor 1).

To facilitate the interpretation and cross-country comparison the individual countries factors are named according to the items they contain. Some factors thus have the same name, although their content might differ. This is the case for the “sustainability” factor which can be found in all analysed countries. These factors always combine a number of environmental and ethical attributes. In Germany (factor 1 and 3) and China (factor 1; + “nutritional value” and 2; + “innovative”) there are even two factors that entail environmental and ethical attributes by the majority. There are many different compositions of the so called “sustainability” factors across the analysed countries. While i.e. in Switzerland the “sustainability” factor (factor 1) combines environmental and ethical attributes with a notion of environmental friendliness and naturalness, the Brazilian “sustainability” factor (factor 1) emphasises more social or fairness aspects in combination with resource saving production.

Most of the analysed countries (CH, GER, BR, CN) have a common “local & seasonal production” factor. Nevertheless, also these factors are different in their individual composition. While in Germany the factor entails only the items “local-“ and “seasonal production” (factor 5) the one of Switzerland (factor 2) includes also “freshness, “good taste” and “nutritional value”. In China (factor 3) the items “local-“ and “seasonal production” are accompanied by “tradition”; in Brazil (factor 2) by “tradition”, “trendy” and “No GMO”.

A similarity found among the industrial countries is the “trendy innovative convenience” factor (CH: factor 3; GER: factor 2; USA: factor 3). A part from the one in the USA which is added up by “traditional” they contain the three traditional food attributes “trendy”, “innovative” and “convenient”.

A part from these similarities there are a number of differences between the analysed countries. This becomes obvious when looking at the very country specific factors such as i.e. “traditional & health attributes” (factor 2) in the USA or at India’s factors “healthy & nutritious” attributes (factor 1) and “modern local production” attributes (factor 3).

## Conclusion

Today's food production and consumption often stand in sharp contrast to the aim of sustainable development. Hence, if global challenges are to be addressed, more environmentally and ethically sustainable food production and consumption is needed.

Both supply chain actors and consumers around the globe are increasingly interested in sustainable food, which differs from conventional food in its environmental and ethical attributes. Although the market for sustainable food is still a niche market, more and more products are marketed as such. However, there is no clear definition of sustainable food, thus for agri-food market actors it is crucial to understand consumer expectations regarding such products, in order to appropriately tailor marketing strategies on a global scale, including both: the level of attributes and the geography. To explore the consumer expectations towards sustainable food, data from an online consumer survey (N=1,719) conducted in three industrialised (CH, GER, USA) and three emerging countries (BR, CN, IN) was used.

The question "Which characteristics should a sustainable food product have?" (Answer options: 1 = strongly disagree ... 7 = strongly agree) was analysed. Combining the two applied methodologies to analyse the data (mean value ranking and factor analysis) allows drawing two major conclusions: 1. There are several attributes that consumers expect from sustainable food at the same time around the globe: environmental friendly production, no chemical pesticides, naturalness, safety, freshness. 2. The factors influencing consumer expectations towards sustainable food are divers and differ between the analysed countries. Both should be taken into consideration when promoting sustainable food no matter whether nationally or globally.

Other than what might have been expected, a simple division into industrialised vs. emerging countries, North vs. South, East vs. West cannot be made, because consumers expectations prove to be much more nuanced and complex in their differences around the word. However, all consumers seem to perceive sustainability as a comprehensive characteristic of food. Other than some labelling approaches or sustainability initiatives have done in the past they do not differentiate too much between environmental or ethical attributes, but rather expecting both simultaneously.

## Implications

The results of this study reveal several implications for agri-food marketers that wish to promote sustainable food. The most obvious challenge to face is the wide variety of consumer expectations towards sustainable food around the globe. Only some attributes seem to be suitable for a global or cross-national marketing strategy. Most of the attributes should, however, be communicated only in specific regions. In agreement with the above mentioned results, Douglas and Craig's (2011) suggestion of a semi-globalised marketing strategy could be an adequate solution for an international marketing strategy for sustainable food products. This means to differentiate and communicate sustainable food according to some global or cross-nationally expected attributes on the one hand and on the other hand to respond to country-specific expectations. Moreover, it seems to be necessary to target the analysed emerging countries with specific marketing strategies and not to group and treat them all the same. The underlying economic, political and cultural reasons, why some aspects are expected in some countries, but not in others could not be identified by this study and open up possibilities for future research. Possible reasons for the diverse consumer expectations among the different data sets might be due to different levels of exposure to environmental or ethical problems, public consciousness as well as to different traditions, attitudes and values. However, even when using the globally expected attribute "naturalness" for communication of sustainable food the problem of missing comprehensiveness will probably persist. Similarly to the term "sustainability", "naturalness" is not clearly defined or regulated and thus open to a wide variety of different perceptions and expectations. For marketers this implies a very careful wording and the need to proof their credibility by certification and or labelling.

Moreover, the results have shown that the analysed industrial countries show a common factor ("trendy innovative convenient") which might serve as an innovative option to position sustainable food and to attract consumers looking for easy ways to integrate sustainable consumption into their lifestyles without the need to abandon comfort or latest trends.

Furthermore, this study reveals, that there is a need for more studies in the field of global marketing strategies for sustainable food products, because only when consumers' expectations are met a more sustainable food production and consumption can be promoted.

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