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Research report

Consumers' perception of organic product characteristics. A review

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ABSTRACT

Consumer interest in organic products is growing alongside a diversification of the supply. In order to serve consumers actual needs and wants regarding organic products, those involved in the market need to be informed about consumers' perception of organic products. Therefore, the state of research as regards consumers' perception of organic product characteristics, including basic and additional characteristics, product labelling, product innovations and the range of products on the market is displayed in this contribution. A comprehensive literature analysis was performed uncovering not only the state of the art in the field including employed methodology, but also research needs. Most studies are published on consumers' perception of organic products' design and labelling. A trend towards the so called 'organic-plus' positioning can be perceived, with many consumers expecting an extensive orientation towards sustainability. The diversity of product labels features prominently in related studies. The demand for reliable information, as well as the low degree of awareness of many labels amongst consumers becomes clear in these studies. To date, few results are available on consumers' perception of packaging and design of organic products, and even fewer for consumers' perception of range design. Both consumers' perception of organic product innovation and valued added services are untouched so far.

Introduction

The upward trend in the consumption of organic foods continued throughout 2011, despite the international economic crisis. Organic consumption is greatest in the USA and Europe, but there is also a developing trend in many other countries of the world (Willer & Kilcher, 2012). Nowadays, organic products, which are here understood as organic foods which are certified as organic according to EU Regulation 834/2007 can be found in most food shops in Western European countries and the USA. In conventional supermarkets and discount stores, organic products need to compete with conventional products and their quality attributes. Conventional retail products are jumping onto the bandwagon of sustainable consumption in the broadest sense, recognizing a broad range of issues, such as animal welfare, freedom from genetically modified organisms (GMOs), rejection of additives and reduction of carbon footprint (see Warschun et al., 2009). Hand in hand with these market developments, organic products are becoming more diversified and there is growing consumer interest in more than just the 'organic quality' attribute. Ethical considerations are increasingly significant, but animal welfare, local origin and genetic modifications also play a role in the organic product decision, on top of the core organic product attributes (see Honkanen, Verplanken, & Olsen, 2006; Zander & Hamm, 2010).

The aim of this paper is to gather the present state of knowledge on the subject of consumers' perception of organic product characteristics. In order to serve consumers' needs and wants, it is crucial that those involved in the market are informed in as much detail as possible about the perception of organic foods, especially since organic products have left their market niche (see Hughner, McDonagh, Prothero, Shultz, & Stanton, 2007). Over the past few years, various studies focusing on individual aspects of organic consumption have been published. Currently, the only comprehensive literature review on organic consumption deals with personal determinants of organic food consumption (Aertsens, Verbeke, Mondelaers, & van Huylenbroeck, 2009). A comprehensive overview over consumers' perception of organic product characteristics does not exist to date. The present contribution, therefore, gives an overview of the state of research on the topic, including basic and additional characteristics, product labelling, product innovations and the range of products on the market.

The paper is structured as follows. First of all, an overview is given of the number of studies according to 'topic', the purpose of each investigation and the country of origin. Next, the current state of research is presented by topic. Each section describes the following: methodology and sample design are presented in order to be able to contextualize the studies empirically; next, results are presented and, finally, the current state of research is discussed

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and research gaps are identified. The last part of the paper puts forward conclusions and suggestions for further areas of research.

Theoretical background

In current marketing literature, a product is defined as a bundle of characteristics of benefit to the consumer (Pickton & Masterson, 2010). In order to encompass the complexity of characteristics offered by the product as a whole, it can be subdivided into three different dimensions, relating to the core value of the product, the actual product and the augmented product, see Fig. 1.

The core product includes the basic product value, which is understood to represent the main characteristics of a product (Pickton & Masterson, 2010; Strydom, 2007). However, product characteristics go far beyond the basic value only, and the core benefits of a product need to be turned into an actual product. Product quality, packaging and design of the product (including labelling) and the brand identity are all attributes that account for the actual product (Armstrong & Kotler, 2009). The augmented product is built around the actual product values. Product support services (such as warranty, after sales service and product support) are also addressed here (Armstrong & Kotler, 2009).

The product quality – referred to as product design in the following illustration – of organic food products can be subdivided into the categories of nutrition, health, sensory properties and organic properties,[1] according to Beck et al. (2012). In the following, organic properties are referred to as 'ethical properties'. Although this term includes the organic attributes of a product, it also includes further ethical attributes, such as Fair Trade or animal welfare.

The basic value of the product quality consists of nutrition and health attributes. Sensory properties and ethical properties can be referred to as the added value (see Beck et al., 2012; Böckenhoff & Hamm, 1983), as shown in Fig. 2.

The sensory properties describe important quality criteria in organic foods (Beck et al., 2012) and comprise shape, colour, taste, smell and texture. Sensory characteristics can be classified as hedonic characteristics, alongside aspects of nutrition and health (Brunsø, Fjord, & Grunert, 2002). Ethical properties are also referred to as the intangible value of an organic product (Böckenhoff & Hamm, 1983), and can be understood as the 'image impact' of the product on consumers. Attributes of product quality can be assigned to both the basic and the added product value.

Products are further characterized by the distinction between search, experience and credence characteristics. The latter is especially important for organic products since the ethical property characteristic of 'production method' is also a credence characteristic, in the sense that the final consumer is unable to verify whether the product is produced organically or not. The same holds for health characteristics. Experience characteristics are product attributes, such as taste, which can only be ascertained after experiencing the product. Search characteristics, for example the appearance of a food product, can be experienced prior to purchase (Grunert, Bredahl, & Brunsø, 2004).

Methodology and overview of the studies

A comprehensive literature search was performed in order to identify the current state of the art as regards consumer purchasing behaviour in general (see Hamm et al., 2011). The literature which serves as a basis for this paper aims at reflecting the current state of research into product policy – to the extent relevant to the examination of consumers' purchasing and consumption behaviour, and was published in the English or German language. Studies that deal with business management perspectives were not included. German and English publications dated between 2000 and June 2011, and focusing on empirical studies with consumers, were selected as a first step. So as to ensure timeliness, the search period was extended to July 2012 in a second step. Grey literature (presentations, scientific reports, etc.) was also included, where such publications met the necessary data source requirements. The following databases were chosen: AgEcon, Cab Abstracts, EBSCO, EconPapers, Emerald Insights, NAL Catalogue, Science Direct, Web of Science, Organic Eprints, BÖLN, Econis and Greenpilot.

In order to structure the literature overview, product policy 'subtopics' were chosen on the basis of the appropriate marketing literature (see Methodology and overview of the studies on the theoretical background). These subtopics cover the fields of product policy which are most relevant, and important in recording consumer behaviour. Table 1 gives an overview of these subtopics and an explanation of the areas covered. The subtopic 'product design' is structured further according to the characteristics of organic products described in Methodology and overview of the studies. Search terms for the single subtopics were selected using prevalent marketing literature and these are also shown in 2; equivalent German search terms were also applied.

Only a fraction of the studies identified was not available at all and had to be excluded from the examination. Others were not used in the analysis because they did not fulfil the methodological

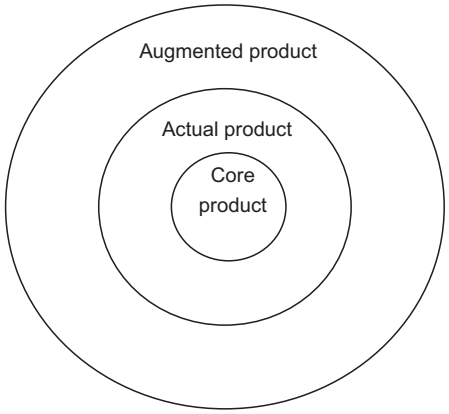

Fig. 1. Product values. *Source:* Armstrong & Kotler, 2009

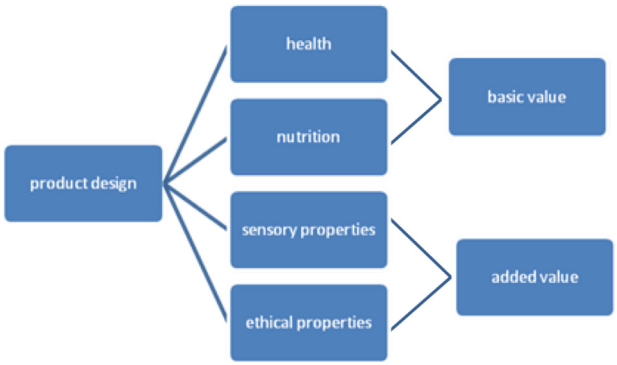

Fig. 2. Product design and values. *Source:* Own illustration based on Armstrong & Kotler, 2009; Böckenhoff & Hamm, 1983; Beck et al., 2012

[1] Beck, Kahl, and Liebl (2012) also included authenticity/traceability in their definition, neither of which is exactly related to product quality. Therefore, these properties are excluded from the theoretical background which serves as a basis for this current analysis. Rather, the subject is treated in the chapter on labelling.

Table 1
Subtopics and contents including search terms.

Subtopics	Contents	Search terms
Product design	Consumer demands concerning an organic product Consumer attitudes towards new or changed products/consumer behaviour concerning product elimination	Product character/consistency, product quality
Packaging design	Consumer demands concerning packaging design	Product packaging, package, product styling, package size, product appearance, product colour
Product labelling	Consumer attitudes and behaviour towards labelling	Label, labelling, brand, product brand
Product range	Consumer demands concerning product range	Product range, product line, product assortment
Product support services	Consumer demands towards product support services such as guarantee and customer service	Product guaranty/warranty/service

Table 2
Study overview.

Subtopics	Number of studies	Countries	Subjects of investigation[a]
Product design	22	Australia, Belgium, Canada, China, Czech Republic, Greece, Denmark, France, Germany, Italy, Japan, Netherlands, Norway, Spain, Sweden, Switzerland, UK, USA	Organic foodstuffs in general, specific groups of products (e.g. meat and wine), foodstuffs with product-spanning characteristics and consumer expectations of these products, organic plus products, functional food, food miles, organic product innovations
Packaging design	2	UK, Germany, Switzerland	Organic foods in general, specific products (fish and milk)
Product labelling	21	Canada, Czech Republic, Denmark, France, Germany, Italy, Japan, Norway, Spain, Sweden, UK, USA	Organic labels and special claims (e.g. health claims), manufacturer brands or retail brands and their perception by consumers
Product range	3	Germany, Sweden	Organic food range in general
Product support services	0	–	–

[a] Ordered according to frequency of appearance.

requirements regarding sampling and analytical method. Further, non-empirical studies were excluded as well. Some studies were associated with more than one of the subtopics and thus appear in different sections.

In total, 48 studies concerning the product, policy-related issues of consumer perception regarding organic foods were analyzed for this investigation. Table 2 gives an overview of the number of studies per subtopic and the major countries of origin, as well as the focus subjects of investigation. It illustrates that two significant research themes were identified: consumers' demand with respect to product design firstly and secondly, product labelling. The product range, which implies consumers' needs as regards the actual range of organic products, emerges as a subtopic which has been examined rather less. Consumers' opinions on packaging design and on product innovation have been hardly touched by research until now.

Product design

This section examines the state of scientific knowledge as regards consumers' expectations and the design or quality criteria of organic products. The results are presented according to the theoretical background and classification of product quality described in Methodology and overview of the studies. Most studies considered 'typical' organic products in everyday use, so as to produce results that could be generalized, but there were exceptions, such as the specific studies on meat, salmon and organic plus products. No studies could be found on consumers' attitudes towards new or changed products or on consumer behaviour as regards product elimination.

Methodology and sample

Eleven publications treated the subject exclusively with quantitative methods. Most publications applied interviews: face-to-face interviews, written interviews or computer-assisted personal or telephone interviews. Experimental conjoint analysis, sensory tests and the information display matrix method have also been used. Eight of the 11 quantitative surveys had a sample size greater than 500. Four of these publications utilized well-founded sampling methods, such as systematic samples, quota samples or random sampling. However, sampling methodology is unclear in some of these publications. Often, a convenience sample was used. One publication was compiled on the basis of quantitative as well as qualitative methods. Here, sensory tests and Vickrey auctions were combined with focus group discussions. Ten publications about product design approached the subject qualitatively, mainly through group discussions. Qualitative approaches are very suitable for obtaining first insights into consumer expectations. Since about half of the publications are based on qualitative research, producing exploratory insights, this first step is done and now quantitative research should follow to validate the first insights into the topic.

Results

First of all, it is striking that most studies looked at the generalities of consumers' perception towards product characteristics. Thus, they did not go into depth, or question the precise nature of consumers' quality perception with regard to sensory, health, nutrition and ethical properties. Additionally, it should be noted that few studies dealt with consumer expectations as the central question of research. Thus, the central findings on product design are drawn from the studies. Studies' results on how the attributes of organic products are perceived share findings in many points.

Several studies found that health and sensory properties are important product characteristics. In focus group discussions undertaken in Australia with both organic and non-organic consumers, Chang and Zepeda (2005) found that sensory parameters, such as taste, flavour, texture, smell and look, are the most

important product attributes when people perform food choices in general, including choices about organic food. Organic consumers also incorporate further criteria in the food choice process, relating to personal health, environmental concerns, animal welfare and the protection of small farms and rural communities. These findings can be supported, in part, by Magnusson, Arvola, Hursti, Åberg, and Sjödén (2001) who interviewed 1154 Swedish consumers using a written questionnaire. They also found that taste and health are the two most important purchase criteria for organic products, further important aspects being long shelf-life and the core quality of the product. Zanoli and Naspetti (2002), who performed an exploratory laddering approach with 60 consumers in Italy, identified that consumers associate taste and health with organic products. Furthermore, they noted that organic products were generally perceived to be "good" and nourishing. Interestingly, in both the latter studies, ethical attributes such as animal welfare or environmental 'friendliness' were not mentioned. Other studies found the health aspect to be most prominent: in a study based on focus group discussions, Stolz and Schmid (2008) found that organic wine is expected to be healthier than conventional wine. When interviewing 23 organic consumers qualitatively in China, Sirieix, Kledal, and Sulitang (2011) were also able to identify health as an important purchase criterion. The importance of environmental friendliness found by, for example, Chang and Zepeda (2005) was also detected by Sirieix et al. (2011). Health factors and environmental friendliness are also shown to be the main reasons for buying organic products in Thailand (Sangkumchaliang & Huang, 2012). As an example of organic product perception in European post-socialist countries, Zagata (2012) discovered that, for Czech consumers, health beliefs and quality attributes are most prominent when purchasing organic products. They showed that environmental issues and the development of sustainable rural areas or local foods appeared to be less significant.

The results of Aarset et al. (2004), in their examination of 196 consumers from five different European countries using focus group discussions, are slightly different from the findings summarized above. Using the exploratory methodology of associations, they revealed that consumers mainly expect organic food to be "natural"; a term which, in generalizing to such an extent, had not been evident in any of the studies mentioned previously. However, in line with other publications, the expectation of environmental friendliness was often mentioned by participants. When examining the differences between countries, Aarset et al. (2004) discovered that animal welfare was only mentioned by the German participants, whereas refraining from pesticide use was mentioned only by Spanish participants. Further associations were limited human intervention (France) and freedom from artificial ingredients (not further specified) in the UK, both of which were not mentioned elsewhere.

The topic of the absence of chemical residues or the avoidance of pesticide application was examined in detail by Tsakiridou, Boutsouki, Zotos, and Mattas (2008). They found that, from written interviews with 660 consumers, Greek consumers expect organic products to be free from chemical residues. This aspect is also addressed by Aarset et al. (2004), Cranfield, Deaton, and Shellikeri (2009), Hill and Lynchhaun (2002) and Stolz, Bodini, Stolze, Hamm, and Richter (2009). Tsakiridou et al. (2008) further noted that, as is mentioned in other studies, expectations relating to the consumption of organic food include not only health but also environmental issues.

Wier, Andersen, Millock, O'Doherty Jensen, and Rosenkvist (2005) took a closer look at consumers' perceptions of the public or private good attributes of products. Interestingly, the authors explained that, even though both private and public good attributes are mentioned by consumers as being important to them, it is the attributes of private goods, like health (including food safety) and quality (such as taste and freshness), that are relevant to the purchase decision. Conversely, public good attributes like environmental and animal welfare are acknowledged widely, but not relevant to the purchase decision. In their analyses of panel data from the UK and Denmark, with a total of 17,000 consumers, the authors found that, even though public goods were rated as more important, it is the private good attributes that make consumers purchase organic foods. Wier, Andersen, Millock, O'Doherty Jensen, and Rosenkvist (2005) further explained that one quarter of the Danish and British consumers interviewed believe that organic products lower the risk of bacterial contamination and 'Mad Cow' disease. This shows that organic products are perceived as ensuring enhanced food safety, even in relation to food safety risks that are not directly controlled through organic farming regulations.

Both Freyer (2007), in his examination of organic consumers in Austria, and Cranfield et al. (2009) incorporate **origin of the product** in their studies. Freyer showed that Austrian organic consumers pay considerable attention to this aspect. From in-depth interviews with 38 organic consumers, he discovered that consumers prefer conventional products from their own localities to organic products from further away. In line with these findings, Cranfield et al. (2009) explained, by means of choice experiments, that a regulation which regulates the place of production of the organic good is important to consumers in Canada. Pesticide standards, including regular testing, are also important to consumers, as noted by other authors (e.g. Aarset, et al. 2004; Hill & Lynchhaun, 2002).

In focus group discussions with 89 participants, regarding the specific case of **meat**, Heid, Brenninkmeyer, Knierim, and Hamm (2011) explored organic consumers' attitudes towards pig meat from piglets which were castrated without anaesthesia. They established that animal protection, consumer health, food security and taste, as well as costs, are all important product characteristics when purchasing organic meat. McEachern and Schröder (2001) also focused on meat consumption. They surveyed 30 female organic consumers in the UK by means of qualitative interviews. They identified product appearance as an important selection criterion for meat and, in a similar finding to that of Heid et al. (2011), they also showed that cost is an import product characteristic. The particular result of a study focusing on organic salmon by Aarset et al. (2004) pointed out that consumers are sceptical and confused about organically-farmed salmon because they expect the process quality to be different: consumers do not expect organic fish to be farmed.

Four studies dealt with **organic plus products**. These are organic products which, additionally, claim special benefits: for example, Howard and Allen (2006) found that the most important 'plus' attributes for organic consumers are humane animal treatment, local origin of the products and living wages for the workers. Organic plus products were also examined in Zander and Hamm (2010) by means of a quantitative experiment with 959 consumers. This study supports the findings of Howard and Allen (2006), since animal welfare and fair prices for farmers are also identified as important organic plus criteria. Furthermore, local origin was tested and this aspect turned out to be very relevant as well. Bickel, Mühlrath, and Zander (2009) focused on consumers' expectations from producer-fair milk: in interviews with 565 German organic consumers about the relevance of the initiative's central motives, the most important criteria to emerge were, again, fair producer prices and organic production. However here, local origin was shown to be important by less than 25% of consumers. Additionally, it was found that organic and local product attributes can serve as substitutes, as was identified by Costanigro, Kroll, Thilmany, and Bunning (2012) in the case of the US market.

Few studies were found on the **comparison between organic and conventional products**: Hill and Lynchhaun (2002) analyzed

and compared consumers' expectations as regards organic and conventional milk, using qualitative methodology. They could not come to a definitive conclusion as to whether or not consumers' believe that organic milk tastes better than the conventional. Also, Hoefkens, Verbeke, Aertsens, Mondelaers, and Camp (2009) compared organic and conventional products in a written questionnaire with 529 consumers. They concluded that consumers in the Netherlands, like those surveyed in the UK market by Hill and Lynchhaun (2002), perceive organic vegetables to be less contaminated and more nutritious compared to conventional ones and, thereby, healthier and safer in terms of product quality. The authors showed that the higher the buying frequency, the higher is this perception, independent of socio-demographics. Hjelmar (2011) made a distinction between politically/ethically-minded organic consumers and the convenience behaviours of pragmatic consumers. He found that politically/ethically-minded consumers apply 'reflexive' practices when purchasing organic food. For these consumers, this implies that health considerations, ethical considerations (like animal welfare), political considerations (such as environmentalism) and quality considerations (like taste) play an important role. These consumers integrate both public and private good attributes into their product claims. The pragmatic shoppers rather pay attention to the availability and visibility of foods, as well as the price.

A study in the Netherlands by Stobbelaar et al. (2007) focused on **adolescents** as a specific consumer segment. Through written interviews, they found that the aspects of environmental friendliness, animal welfare and personal health already identified in other studies were important factors for adolescents as well. Organic food was perceived as tasty, though not as cheap, by half of the pupils. Girls had a more positive attitude towards the quality of organic food than boys.

Stolz et al. (2009) was found to be the only study that closely examined consumers' product criteria characteristics, and looked at consumers' expectations of product quality in detail. Their research focused on five different products: apples, eggs, tomatoes, yoghurt and bread. They conducted 11 focus group discussions in Germany and Switzerland. In the case of yoghurt, they found that fat content is the most important quality criterion. Some consumers complained that organic, fat-reduced yoghurt was not available in Germany. As regards bread, consumers criticized the application of additives, and highlighted type of flour as the most important quality criterion. Generally, taste emerged as the most important sensory criterion for all the products examined. In addition, geographical origin was also considered, especially of apples (see also Freyer, 2007). Important production and processing criteria in the case of apples include absence of synthetic, chemical plant protection and cultivation in open land.

Table 3 provides a summary of the studies analyzed for this overview. Clearly, sensory characteristics, health, and ethical properties are seen to be the most important quality characteristics; nutritional values are hardly mentioned. Amongst the ethical properties, environmental issues and animal welfare are most prominent. The results of the studies with an explorative approach, which were based on consumers self-reporting about the importance of organic quality properties, are shown to be comparable, in aggregate, with those of the quantitative studies.

Current state of research

Studies concerning organic consumer perception of product attributes have looked chiefly at the question of what general conditions consumers expect from an organic product. Generally speaking, it can be said that, beneath the core values of a product (which are mainly sensory and nutritional attributes in the case of foods), augmented product characteristics are also important to consumers. This is not surprising in the case of products with an additional benefit. Further, it is possible to differentiate between public and private good attributes: most studies found that consumers both value public and private good attributes. Nevertheless, the expected quality attributes mentioned in most of the studies are sensory attributes (taste) and health, regardless of the country of origin of the study, database or product. Since about half of the studies have an exploratory character, future research should focus on testing the multitude of attributes identified, using broader samples. Here, distinctions should not only be made between different socio-demographic types and the consumers and non-consumers of organic foods, but the differentiated approach of Hjelmar (2011) as regards pragmatic and ethical shoppers might also shed light on the relative importance of public and private good attributes, depending on consumer segment. Generally, results could be better specified through applying more consumer-oriented approaches. Most studies deal with organic products in general, or with typical products, in order to generalize results, but studies of meat from (non-) castrated piglets and of salmon have been exceptions.

A major research gap arises from the fact that there is only one study (Stolz et al., 2009) which actually focuses on the details of consumer demand for product characteristics. However, this study only offers limited insight, since identifying consumers' expectations with regard to organic products was not the core topic of the study, and only four selected product groups were analyzed. Further, analysis of real organic innovation is missing from research studies, as is an assessment of how organic consumers generally respond to innovative products (Variety-seeking behaviour).

Packaging design

In this section, the consumers' perception of the design of organic packaging is discussed.

Methodology and sample

Overall, just two publications, from the UK and Germany/Switzerland, raised the subject of packaging design with regard to organic products. The study by Hill and Lynchhaun (2002) applied focus group discussions consisting of only female organic consumers and participants were selected at random. A further study, also based on focus group discussion data, was undertaken by Stolz et al. (2009) in Switzerland and Germany. In this case, a total of 11 focus group discussions with organic consumers were conducted, and selection of participants was based on a quota approach.

Results

Hill and Lynchhaun (2002) analyzed the perception of organic milk packaging and found that its appearance was regarded by consumers as relatively subdued. Only one of the packages tested was perceived not to be so, because of its bright and colourful design. Consumers emphasized that it was important for them to be able to distinguish between organic and conventional packaging. Stolz et al. (2009) offer more detailed insights into product packaging. Generally, however, it should be noted that packaging was not discussed very extensively in their focus group discussions, highlighting the lack of relevance of the topic from the consumer point of view. Nevertheless, due to the exploratory character of the discussions and the nature of the study goals, some insight was gained into the relevance of specific shopping and quality criteria: consumers mentioned that they dislike tomatoes which are wrapped in plastic; regarding yoghurt, they would like to be

Table 3
Summary of the studies analyzed in product design.

Study	Consumer type	Product quality characteristics						
		Nutrition	Health	Sensory properties	Ethical properties	Specification of organic quality properties	Others	Number of participants
Qualitative approach								
Aarset et al. (2004)	General				+	Organic products are "natural"; animal welfare, environment, free from residues		196
Chang and Zepeda (2005)	Organic		+	++	+	Environment, animal welfare, protection of small farms and rural communities		36
Freyer (2007)	Organic				+	Environment	Origin	38
Hill and Lynchhaun (2002)	Organic		+-		++	Free from residues, environment		4 Groups
Hjelmar (2011)	General		++	++	++	Animal welfare		16
McEachern and Schröder (2001)	General			++	+	Animal welfare	Origin	30
Sirieix et al. (2011)	Organic		++		+	Environment		23
Stolz and Schmid (2008)	Organic		++					16 Groups
Stolz et al. (2009)	Organic	++	+	++	++	Free from residues, production method	Bread quality: kind of flour; origin	11 Groups
Zanoli and Naspetti (2002)		+	++	++	+	Organic products are "good"		60
Qualitative and quantitative approach								
Heid et al. (2011)	Organic		++	++	++	Animal welfare		89
Quantitative approach								
Bickel et al. (2009)	Organic	o	o	o		Farmer reward, organic production, local origin		565
Cranfield et al. (2009)	General				++	Free from residues	Origin of the product	137
Hoefkens et al. (2009)	General	++	++				Less residues than conventional products	529
Howard and Allen (2006)	Organic	o	o	o	Organic plus products	Animal welfare, local origin, farmer reward		475
Magnusson et al. (2001)	General		++	++			Long shelf life, "quality"	1154
Sangkumchaliang and Huang (2012)	General		++		++	Environment		390
Stobbelaar et al. (2007)	General		+	+	+	Animal welfare, environment		682
Tsakiridou et al. (2008)	General		++		++	Environment, free from residues		660
Wier, Andersen, Millock, O'Doherty Jensen, and Rosenkvist (2005)	General		++	++	*			1609
Zagata (2012)	Organic	+	++					1054
Zander and Hamm (2010)	Organic	o	o	o	Organic plus products	Animal welfare, local origin, farmer reward		1192

* Acknowledged but not purchase decisive.
o Not examined.
\+ Important.
++ Very important.
+- Neither nor.

offered different packaging sizes. Some consumers said they prefer plastic, others glass. Consumers also mentioned a preference for fresh bread, rather than pre-packed loaves.

Research gaps

There are clear research gaps in term of packaging design, as only two publications were identified. Furthermore, as both studies focus on specific products, packaging design is only one of the issues addressed. Additionally, both are of exploratory nature.

Although there are transferable study results associated with the consumer interest in 'green' packaging more generally, these do not focus specifically on organic products (Rokka & Uusitalo, 2008). However, this study found that a significant proportion of consumers prefer environmentally-friendly packages for functional drinks. All in all, it can be concluded that, although a few specific aspects of specific products have been worked on in the field of packaging design for organic products, there are still considerable gaps in research. A general appraisal of how organic consumers react to 'green' packaging at different points of purchase could provide a starting point for further research. Next, the reactions and expectations of consumers as regards the packaging of specific products could be tested, since packaging is product-specific. The design of a product is also closely related to brand (Ambrose & Harris, 2011), and could therefore also be tested at brand-specific level.

Product labelling

This section gives an overview of publications that deal with consumers' perception of labelling, including knowledge of labels and trust in labelling organizations. The matter of labelling as a communication tool is excluded from this discussion.

Methodology and sample

Fourteen publications use quantitative methods in their studies of product labelling. In most cases, choice test methodology (including interviews), interviews or conjoint analyses were applied. Between 122 and 40,341 participants were contacted, and these were sampled mainly through convenience or quota approaches; one study applied panel data. Five qualitative publications based their research on focus group discussions, in depth-interviews or laddering interviews. Two studies applied a combination of qualitative and quantitative methods, the combined focus group discussions either with face-to-face interviews or choice experiments.

Results

Consumer knowledge about labelling is crucial, not only for recognition of an organic product, but also for trust in its credence attributes. In this context, Janssen and Hamm (2011) showed that the **state of knowledge** about organic certification schemes is generally poor. Many consumers do not know that a control system underlies organic production, and knowledge of the differences between types of label is generally lacking. Furthermore, consumers' perceptions of organic labelling schemes tend to be mostly subjective and, consequently, not based on objective knowledge (Janssen & Hamm, 2012). For the US market, Essoussi and Zahaf (2009) showed that regular organic consumers know about the labels and recognize the different ones available. They also found that, when buying organic foods, consumers look for certification and a label, indicating that the label is the means of identifying organic foods in the store (see also Hjelmar, 2011) and of differentiating such foods from conventional products (Wier, O'Doherty Jensen, & Andersen, 2008).

As regards trust, Aarset et al. (2004) detected a lack of trust in organic labelling and the underlying regulations in their analysis of focus group discussions with 196 consumers from five European countries. Their findings suggested that there is mistrust of government regulations in the UK, Germany and Norway, the exceptions being France and Spain.

Complementary findings are presented by Sonderskov and Daugbjerg (2011) who examine the question of **what makes an eco-label trustworthy**. They found that trust in different organic labelling schemes is greatest where there is substantial state involvement. Consumers are more likely to trust labelling schemes where the state plays an active and visible role. In their Computer-Assisted Personal Interviews (CAPI) and choice experiments with 1000 consumers in UK, the USA, Denmark and Sweden, they found that citizens who are confident in governmental institutions are also confident with the labelling scheme. This also applies in countries where no governmental labelling takes place. Therefore, in countries where consumers do not trust state institutions, consumers' trust in labelling cannot be increased by relying on a non-state label. More specifically, they showed that in the USA[2] and the UK, consumers tend to rather trust organic labelling or are unsure. Nevertheless, a notable proportion of consumers in both countries remain mistrustful of organic labelling. Trust in such labelling was shown to be greatest in Sweden and Denmark. The latter conclusion is supported by the findings of Hjelmar (2011) who reported that most of the respondents in his study, which was based on in-depth interviews with 16 Danish consumers, showed a general trust in eco-labels. He identified the key role of labels in creating trust in organic products. Wier, O'Doherty Jensen, and Andersen (2008) found that the Danish organic label is perceived as trustworthy and well-known, and that consumers understand the underlying rules well. They noted that the situation is different in the UK due to the existence of five national inspection bodies, each of which has their own label. However, the study concludes that organic labelling is trusted in the UK as well, contrary to the findings of Aarset et al. (2004). Janssen and Hamm (2012) added that consumers do not usually trust products if they do not carry an organic logo.

Internationally, markets for organic products are characterized by the fact that there are many different organic labels. Several studies deal with **consumers' preferences for specific labels**, and also comparison with non-organic labels. Janssen and Hamm (2011), in a study based on focus group discussions with 218 organic consumers from five different European countries, looked at the question of which labels consumers prefer when they have a choice, as is the case in various countries. They explain that some consumers prefer certain labelling schemes because they perceive them as having stricter standards than the EU label, for example, in the case of some farmers' association standards in Germany and the governmental label in Denmark. However, as has already been shown, information about the differences between standards is not always given. For the label owners, this means that there is a need to communicate the underlying criteria on which standards are based. This could provide certification schemes with a strategy for differentiating their labels from the mandatory EU logo.

In the **Japanese market**, Kim, Suwunnamek, and Toyoda (2008) performed a conjoint analysis based on data from 202 consumers. They found that Japanese consumers prefer organic products equipped with the governmental label (JAS), rather than organic labels. The JAS label is perceived as a reliable source of quality and safety certification, but varying degrees of preference for private labelling schemes also exist. These findings on the preference for organic products with the JAS label is not completely supported by Sakagami, Sato, and Ueta (2006) who performed written interviews and choice experiments with 698 consumers in Kyoto, Japan. Sakagami et al. (2006) detected a preference for the products of a non-profit organization certification scheme for vegetables that claims not to use agricultural chemicals or chemical fertilizers, or to reduce the amounts used by at least 50%, over the federally-controlled JAS label. They also showed that, when purchasing fresh vegetables, the importance of certification is not as great as freshness and region of origin.

In an examination of the **US market**, Kiesel and Villas-Boas (2007) undertook a survey of the consumer preference for organic products which are either labelled or not, based on panel data and written interviews. The results of this study show that if organic milk is equipped with an USDA label, it increases the probability of purchase. These findings are supported by Ward, Hunnicutt, and Keith (2004) who conducted phone interviews with 933 organic consumers in Utah, USA. They discovered that consumers have more faith in third party or governmental certification than in self-certification, which is not perceived to be as effective as independent certification. On the US market though, perceptions of organic products and those of products with natural claims appear to coincide. In this context, Abrams, Meyers, and Irani (2010) conducted focus group discussions and qualitative interviews with 15 consumers in USA, and detected positive associations with both the organic and the "all-natural" claims for organic meat. However, the all-natural claim was not completely trusted; study participants were confused about both "standards" and questions were left unanswered.

The matter of organic labelling versus the Protected Designation of Origin (**PDO) or the Protected Geographical Indication (PGI) label** is only examined by Scarpa and del Giudice (2004) who performed face-to-face interviews with 300 consumers in Italy.

[2] Here, they are almost in line with Essoussi and Zahaf (2009) who conducted in-depth interviews with 21 consumers and found that non-regular consumers tend to trust the organic labels, whereas regular buyers tend to question certain organic suppliers.

They were researching the preference for olive oils associated with these two different claims, and found that **PDO/PGI** labelling was always preferred over an organic label, although the intensity of preference for the organic option was stronger in northern Italy than in the southern part where preference for PDO/PGI labelled products strongly dominates.

Another 'trade-off' issue which has been examined in studies is the **trade-off between organic claims and health claims**. Bond, Thilmany, and Bond (2008) carried out 1549 consumer choice experiments in the USA and found that products that carry both a health claim and an organic label are valued more highly than products with an organic label only. Similarly, in Germany, Maroschek et al. (2008) performed face-to-face interviews combined with choice experiments with 210 organic consumers, concluding that purchase probabilities are significantly higher if organic products carry a health claim. This finding accords with those of Bond et al. (2008). In both the organic and the conventional sectors, products carrying such claims are considered to be healthier.

Few studies could be found on the effect of **branding**: Wirthgen (2005) analyzed the preference for organically-labelled products and organic brands in Germany. She identified the German Bio-Siegel, a producer association label and a retail brand as being the three most-purchased organic products, and was able to show that consumers not only pay attention to the organic label, but also to the organic retail brand. In her study, Baranek (2007) explains that building up strong organic brands could offer substantial potential for the development of the German market. Brands are able to communicate the attributes of the product demanded in a favourable way, especially as they are able to help develop the consumer trust that is so important for organic products (due to their credence good characteristics). Nevertheless, a trade-off analysis between organic labels and brands was not performed by Baranek (2007). Recently, however, two studies have been published which investigate the interaction between branding and labelling in the case of organic products. According to Bauer, Heinrich, and Schäfer (2012), the application of an organic label can increase the brand perception and add value to the brand. This study is based on in-depth interviews as well as online questionnaires ($n = 630$) with consumers and identifies the support given to brand differentiation by organic labels, especially in the case of private brands which appear to profit the most from an organic label. Generally, Bauer, Heinrich, and Schäfer (in press) found that owners of strong brands should be careful when adding an organic logo, since the organic attribute could outperform the brand itself. In conclusion, the authors recommend that organic certification is mainly appropriate for private brands, or relatively weak brands. This accords with the findings of Larceneux, Benoit-Moreau, and Renaudin (2012): if the brand equity is high, the organic label appears less effective and vice versa.

Research gaps

On the subtopic of 'product labelling', there are various studies about the labelling of organic products, but only one study dealing with the obligatory EU organic label since its introduction in 2010. This is a significant research gap, as there has been no extensive discussion regarding the question of how consumers perceive the new EU organic logo in comparison with governmental or private organic seals and other association marks. Further research is also needed about the extent to which country of origin information makes sense and acceptance of the new EU seal by consumers. As regards specific products, no study deals with labelling perception from a consumer point of view, and the level of research into the labelling of specific characteristics is rather low. This has only been studied in the context of the labelling of organic plus products, information about the country of origin and products with health claims. In particular, there seems to be a research gap as regards origin labelling which has, in fact, only been examined by Scarpa and del Giudice (2004) for the specific case of Italy.

The field of branding policy could also be explored further, although there have been pioneer studies on trust with regard to retail and manufacturers' brands and the trade-off with organic labels (Wirthgen, 2005), as well as on trust in organic trade marks (Baranek, 2007). Recently, two studies on the co-effects of branding and organic labelling were published (Bauer et al., 2013; Larceneux et al., 2012). On the basis of these findings, further studies could be conducted using enhanced survey and analysis methods. At the international level, the potential for organic brands on the Swedish market has been examined (Lind, 2007), as has consumers' trust in organic retail brands (Perrini, Castaldo, Misani, & Tencati, 2010). Both studies, however, are only capable of giving first insights into these aspects, when looked at from the methodological point of view.

Product range

There are only a very small number of studies that explicitly deals with consumers' expectations about retailers' assortment, in terms of organic food product lines, or perceived gaps in the range on offer. Whereas there are scores of studies dealing with consumers' attitudes towards specific organic products (see Product design), thus implicitly addressing the question of whether a product should be integrated into the assortment or not, consumers' perception of the range, as such, is hardly addressed.

Methodology and sample

In their study, Buder and Hamm (2011) used computer-based personal interviews with 817 organic consumers in 16 points of sale distributed all over Germany. Gaps in the product range available in different food retail shops in the organic field were specifically identified. Spiller, Lüth, and Enneking (2004) applied the Laddering technique to a qualitative survey of 32 consumers, and applied choice experiments with 1150 consumers in Germany. Further, they performed 12 expert interviews with retailers, traders, processors and producers. Lüth, Spiller, and Enneking (2005) applied choice experiments in the case of 1080 respondents who were interviewed face-to-face and computer-assisted.

Results

Buder and Hamm (2011) found that consumers perceive gaps in product assortments: the results of their study showed that consumers demand a broader range with regard to frozen pizza, cheese, convenience desserts, margarine and sweets. This corresponds with the general findings of Spiller et al. (2004) who noted that organic consumers also demand convenience products. However, the perception of organic consumers is that the visual and sensory qualities of organic convenience products are not without problems. Lüth et al. (2005) suggested that "health and physical fitness are current trends that might be combined with organic food", as well as combinations of organic with local origin (which, nowadays, is already integrated into the market). They further emphasize the importance of chilled or functional food and recommend expanding the organic product range by innovative and imaginative products, in line with Spiller et al. (2004).

Research gaps

Since only three studies were identified on consumers demand regarding product assortment, and these refer exclusively to the

German market, various research gaps can be highlighted. International studies could focus both on the range demands, as well as the specific assessment of consumers' demands regarding product assortments in the different retail outlets. Another question, which Magnusson et al. (2001) touched on for the Swedish market, is whether organic products are easy to find and identify. As a general statement, they found that availability is limited, but that there are no major obstacles in finding these products. However, their results are from 2001 and may have become outdated due to rapid market development. Furthermore, their results hold for Sweden only. Another question that also remains unaddressed to date is that of the position of organic products in supermarkets; whether consumers prefer them to be integrated, or displayed separately on extra shelving for organic products.

Product support services

No studies about product support services for organic food products – such as product guarantee and customer services – could be found. This is surprising, since such services might help to reverse a lack of demand and simplify or increase the comfort use of products. For example, studies on the effect of 'taste guarantees' do not exist. Taste guarantees imply that consumers are remunerated the product price if they are not satisfied with the product quality in order to reduce their barrier to try an organic product for the first time. Further, products which are rather infrequently purchased by mainstream consumers, but majorly exist in organic quality, such as silken tofu, are often accompanied by product recipes or other notes for use. Effects of those preparation tips are not analyzed either.

Conclusions

With regard to **product design**, it is striking that most studies treat the subtopic in general terms. With the exception of Stolz et al. (2009) who focus on five products in different European countries, studies neither go into depth nor address detailed questions of consumers' quality demands and perceptions.

The majority of these studies treat organic consumers explicitly. Through taking a look at consumers' expectations of organic products in general, useful insights are generated into how to attract new consumers and promote the consumption of organic products. Exceptions are the studies of Hill and Lynchhaun (2002) and Hoefkens et al. (2009), which compare organic and conventional products explicitly. Despite the fact that studies originate from different countries, and focus on different products using different databases, common attributes connected with organic products are found in much of the research. These are properties of the core and the actual product: sensory characteristics (taste), nutritional quality and health. Further relevant attributes depend on the study in question but, in the main, the focus is on the augmented product: environmental friendliness, animal welfare and the absence of pesticide input.

A few studies focus on results which are not potentially transferable to other product categories due to their specificity. In this context, research has been undertaken specifically on fish and meat, and on organic plus products.

Although the use of various research methodologies can be assessed valuable, it is striking that many studies were still exploratory in nature. This indicates that many possible fields remain to be further developed.

On the **packaging and design** of organic products, there are very few results available to date. Even though there are manifold publications on this subtopic relating to products in general, and also to green packaging (Rokka & Uusitalo, 2008), few insights are given with respect to organic products. There is a need for studies which focus on the specific expectations of consumers regarding coherent organic product presentation, especially since almost 70% of purchase decisions are made at the point of sale (GfK, 2012).

Labelling issues, including the extent of knowledge and trust in organic labels, preferences for different organic labels, and preferences for organic in comparison with other kinds of labels have also been examined in relevant studies. In Europe, the state of knowledge about labelling was found to be poor and, additionally, was not based on objective consumer information (Janssen and Hamm (2012). In the USA, a label is seen as the means of identifying the organic product as such (Essoussi & Zahaf, 2009). Levels of trust in organic products depend very much on the country concerned. Additionally, Sonderskov and Daugbjerg (2011) further indicate that trust in governmental labels is stronger where there is a substantial state involvement. Generally, in Scandinavian countries, trust in governmental labels seems to be substantial (see Hjelmar, 2011; Sonderskov & Daugbjerg, 2011; Wier, O'Doherty Jensen, Andersen, & Millock, 2008). In the USA, trust in labelling is not that pronounced and findings also differ in the UK. Clearly, given the variation in labels and the diversity of products in different countries, consumer trust and preferences with regard to particular labels and schemes will also vary. In the USA and also in Japan, organic products compete directly with products that are labelled as 'natural'. Preferences for products labelled with health claims or PDO/PGI have also been discussed in some studies.

In the organic context, few publications exist on the subject of product range and, of these, only the study by Buder and Hamm (2011) for the German market identified specific gaps in product assortment. However, a further two publications also focus on the German market and both identify product gaps relating to the assortment for organic convenience foods. Brand policy has been little explored, although there are a few insights into the trade-off between organic labels and retail brands, and the strength of organic brands.

Product innovation as a research theme remains completely untouched and, similarly, no studies were evident on product support services within the organic sector.

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