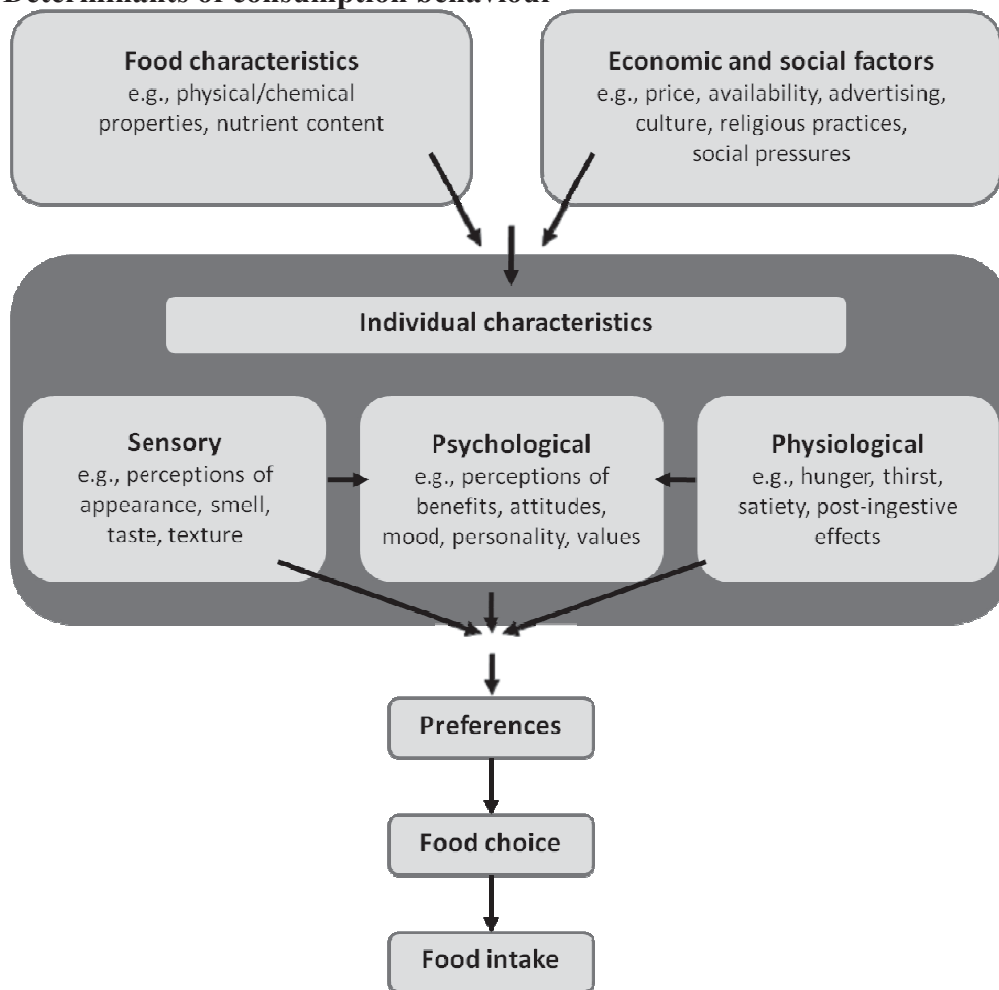


Introduction

People's food choices have been the focus of many scientific disciplines, such as nutritional science, food technology, sociology, psychology, sensory research and marketing (Solomon et al., 2010). The understanding of food consumption behaviour is of paramount importance considering the availability of a great variety of products in a globalising and highly competitive food market and thus a central task of food marketing. Past research into this topic revealed food purchasing to be a complex process that is characterised by the interplay of several influencing factors (Conner, 1993; Rozin, 1996; Shepherd, 1990; Shepherd & Raats, 1996). Besides economic and social criteria (e.g., price, availability, labelling, culture, society), psychological aspects (e.g., attitudes, beliefs, values, personality, emotions), physiological factors (e.g., hunger, thirst, satiety) and particularly the sensory perception of, and preference for food properties such as smell, texture, appearance and taste are claimed to determine consumers' food preferences and subsequently food choices (ibid.). The model in Figure 1 displays these interrelated factors and shows how they affect consumption behaviour that is comprised of preferences, food choice and finally food intake.

In general, a preference is a choice of one subject over another. In the context of food, the term preference is commonly used for liking, although they are not synonymous (Rozin & Vollmecke, 1986). Liking refers to the palatability and contributes together with other aspects such as price, availability or attitudes, to the building of preferences for a food (Rozin, 1996). Meiselman (1996) suggests the following definition of the term preference: "a general predisposition for a particular food independent of the situation" (p. 253). The interpretation of the word preference in the sense of liking is used in this dissertation.

Empirical findings confirm the importance of taste for consumers' food choices in general (Anna, 2001; De Ferran & Grunert, 2007; Lusk & Briggeman, 2009; Max Rubner-Institut, 2008; Torjusen et al., 2001; Wandel & Bugge, 1997). Several authors underline the fundamentality of a pleasant taste. They conclude that food is unlikely to be eaten if its sensory attributes are not perceived as positive (Furst et al., 1996; Hetherington & Rolls, 1996; Steptoe et al., 1995). Moreover, one of the recent consumer trends in the food sector reflects an increased interest in food consumption that is characterised by indulgence, pleasure and a strong quality orientation that finally can be attributed to sensory experiences (BLL, 2008; Hughes, 2009; Zühlendorf & Spiller, 2012).

Figure 1: Determinants of consumption behaviour

Source: On the basis of Conner (1993) and Van Trijp and Schifferstein (1995)

Part of this trend is the rising demand for food whose quality is ascribed to certain production methods, such as organic food. The expansion of organic food markets can be observed throughout the world. In 2011, the European market for organic food increased by nine percent compared with 2010 and has almost doubled since 2004 (Schaack et al., 2013). The interest in ecologically produced food is not limited to “core” organic buyers, but rather it is spread among all types of consumers. The drivers of this development are manifold. Initially, food scandals like the BSE-crisis led to an increased awareness of food safety and health concern. Subsequently, the intensive promotion of organic standards (e.g., the implementation of the Bio-Siegel in Germany or the National Organic Program by the USDA (U.S. Department of Agriculture)) and the conventionalisation of market structures contributed to the improved availability and visibility of organic food (Aertsens et al., 2009; Codron et al., 2006; Naspetti & Zanolini, 2009). Not least, there is evidence that organic products also attract consumers primarily because of their good taste (Magnusson et al., 2001; McEachern & McClean, 2002; Schifferstein & Oude Ophuis, 1997; Stobbelaar et al., 2007). Besides apparent health promoting aspects and environmental friendliness, taste is a frequently



claimed purchasing motive for organic food products. Thus, sensory characteristics represent a promising method to position organic products in the food market and to differentiate them from competing products. The high relevance that consumers assign to taste suggests that emphasising the sensory quality represents a suitable communication strategy, especially for high-quality foods like organic products.

Classification within the research field

While there is a plethora of research with regard to the effects of socio-economic and psychological aspects on consumption behaviour; so far marketing literature has not accounted sufficiently for the high relevance of sensory perception for consumers' food choices. One reason for this is the traditionally weak linkage between sensory analysis and marketing research, both of which share the goal of selling a profitable product in the market, but which differ substantially in their approaches (Wilton & Greenhoff, 1988). The scope of sensory analysis is the development of new products and the improvement of existing ones in terms of physical, chemical and microbiological composition and finally in good taste (Van Trijp & Schifferstein, 1995). For this, it uses possibly objective measurement methods, i.e., experts or trained consumer panels that conduct sensory testing. Moreover, sensory analysis is characterised by operating product-specifically and in an experimental environment that guarantees the exclusion of interferences with other factors that affect food choices in real consumption situations (Lawrence et al., 2003; Wilton & Greenhoff, 1988). To the contrary, marketing research investigates the overall perception and acceptance of food products by the consumer and attempts to capture a possibly realistic consumption setting. It seeks to understand the various drivers of food consumption by using rather subjective methods for the measurement of preferences (ibid.). Keeping both approaches separated or insufficiently integrated may lead to a poor understanding of consumer needs, which, in the worst case, results in product failure (Lawrence et al., 2003), as prominent examples like the "New Coke" and "Burger King's new French fries" have shown (Armstrong & Kotler, 2000; Ordonez, 2001). In both cases taste tests failed to predict the market performance of those product innovations due to not having taken into consideration the consumer and the marketing context (Lawrence et al., 2003). Although approaches combining both disciplines exist, empirical studies including sensory variables are relatively few and moreover reveal differing results (Saba et al., 1997). Moreover, a scientific standard for such combined analytical procedures is missing. However, the plurality of factors influencing food preferences demands a closer integration of sensory analysis in marketing research. Also, the fact that the social and cultural environment set up the framework for food consumption, thus determining the exposure of food and thereby shaping food liking (Mela, 2001; Wright et al., 2001), requires the consideration of sensory preferences for the analysis of consumer behaviour.

This cumulative dissertation aims to build an interface between product-oriented sensory analysis and consumer-centric marketing research, contributing to the emergent discipline of sensory marketing. Following an integrative approach, the dissertation enables a more comprehensive analysis

of consumer behaviour by considering the role of sensory preferences in relation to other aspects that determine food choices.

Objectives of the dissertation

This dissertation presents empirical methods that take into account the need for a more sensory-oriented consumer research. It aims at exploring different facets of consumer behaviour with particular emphasis on sensory preferences. For this purpose, sensory preferences are related to different aspects that affect consumer behaviour or are part of it, namely attitudes, organic food consumption frequency, culture and marginally socio-demographics. Next to these personal criteria, the effect of product-related factors, i.e., product information on the sensory perception is considered. In order to emphasise the potential of the analysis of sensory preferences for strategically marketing high-quality goods, the presented studies predominantly refer to the consumption of organic products as one example of premium-food. With respect to methodology, these objectives are mainly approached by statistical analyses of quantitative demoscopic market data from six European countries.

An excursus provides insights into an additional market segment of high-quality food, i.e., traditional food specialities. Similar to organic food, traditional specialties are characterised by specific production methods that, according to consumers, contribute to a unique sensory quality (Almli et al., 2011; Bower & Baxter, 2000; Vanhonacker et al., 2010). However, in the focus of the excursus is the relationship between perceived authenticity of food specialities and psychological dimensions of the consumer's mind and the effect of both constructs on consumer behaviour. Thus, addressing another perceptual dimension that is assumed to influence food choices, offers additional insights into the complex process of consumer behaviour.

Structure and content of the dissertation

The dissertation comprises six articles that are divided into three chapters that examine the above mentioned research concerns. The reported articles, in similar versions, are either published in scientific journals, submitted or are intended for submission. Table 1 outlines the structure and content of the dissertation.

Table 1: Structure of dissertation

Introduction		
Organic food consumption behaviour		
Literature review regarding organic food consumption behaviour	<i>I</i>	<i>Consumption behaviour regarding organic food from a marketing perspective – A systematic literature review</i>
Sensory preferences		
Consumer typology based on sensory preferences	<i>II.1</i>	<i>Cross-national sensory segments in the organic market based on stated preferences for the five basic tastes</i>
Framework of preferences for sensory attributes of organic food	<i>II.2</i>	<i>Core organic taste: Preferences for sensory attributes of organic food among European consumers</i>
Effect of the organic label on sensory perception	<i>II.3</i>	<i>Organic food labels as a signal of sensory quality – insights from a cross-cultural consumer survey</i>
Relationship between attitude and sensory preferences with regard to naturalness	<i>II.4</i>	<i>Preference for naturalness of European organic consumers – First evidence of an attitude-liking-gap</i>
Excursus		
Authenticity of food specialties	<i>III</i>	<i>Developing an authenticity model of traditional food specialties: does the self-concept of consumers matter?</i>
Summary		

In the following, each research article will be placed in the context of the objective of this dissertation. In addition, the scope and methodological procedure of every study will be briefly described. The outlined articles will then be reported in full length. Subsequently, a comprehensive summary will be presented including remarks about the main findings of the presented articles, a discussion of the results with respect to recommendations for marketers, practitioners and scientists and the consideration of research limitations. Finally, suggestions for future research will be made taking into consideration the limitations of the presented research approaches.

Chapter I: Organic food consumption behaviour

The first chapter builds the basis for the following analyses. The article “*Consumption behaviour regarding organic food from a marketing perspective – A systematic literature review*” provides an extensive overview and structure of existing literature regarding organic food consumption. Using the 4 C’s as a framework, it covers the main marketing elements from a consumer’s perspective, i.e., consumer value and benefits, costs, communication and information and convenience. The article does not focus on sensory preferences. However, it contributes to this dissertation by identifying studies that deal with sensory aspects of organic food or with the perception of these by the consumer. The brief descriptions of the main outcomes give information about the status quo and the relevance of this research field, from which a possible need for further research can be derived. The

article reports the results of a systematic literature review that analyses secondary data of 279 studies that were published between 2000 and 2011 in English peer-reviewed scientific journals.

Chapter II: Sensory preferences

Against the background of the prevalent importance of sensory characteristics for the purchase of organic food, this chapter focuses on sensory preferences of organic consumers and thus builds the core of the dissertation. It intends to explore product-specific and product-unspecific sensory preferences and investigates their role in consumer behaviour. Thereby, it stresses the chances of integrating sensory product information into the marketing of organic food and provides recommendations for marketers and producers. All four studies use the same data base, which was obtained in the framework of an EU-funded research project between November 2010 and February 2011 in Italy, Germany, Switzerland, Poland, the Netherlands and France.

The first article presents an approach of building a consumer typology under consideration of product-unspecific sensory preferences. Article II.1, entitled “*Cross-national sensory segments in the organic market based on stated preferences for the five basic tastes*”, uses stated preferences for the five basic tastes sweet, salty, sour, bitter and umami for classifying organic consumers. By means of a hierarchical cluster analysis, the study illustrates the stepwise process of segmenting a market and thus proposes a flexible instrument that is applicable for different marketing needs. Revealed patterns of taste preferences are related to socio-demographics and cultural origin by using descriptive and bivariate statistical methods.

The second article (II.2), “*Core organic taste: Preferences for sensory attributes of organic food among European consumers*”, proposes a framework of sensory attributes for which organic consumers presumably have a preference, the so called “core organic taste”. Deriving from the principles of a wholesome nutrition and the ideals of organic food consumption, and supported by empirical evidence, a theoretical framework is elaborated and explored in a cross-national context. Stated preferences for sensory properties of organic food are also examined in relation with consumers’ organic food consumption frequency. This exploratory approach mainly uses correlations and ANOVA for data analysis.

Article II.3 and II.4 deal with actual sensory perceptions of a specific product, namely the liking of strawberry yoghurt. The article “*Organic food labels as a signal of sensory quality-insights from a cross-cultural consumer survey*” (II.3) applies sensory testing in order to find out whether and how information about production methods, i.e., organic and conventional, influences the perception of taste. This is achieved by comparing means with a non-parametric Wilcoxon test. Correlations were calculated in order to check whether effects depend on the organic food consumption frequency.

The article “*Preference for naturalness of European organic consumers – First evidence of an attitude-liking-gap*”, provides insights into organic consumers’ attitudes towards natural food and in their sensory preference for it. A principal axis factor analysis is used to explore whether there is



evidence for a latent dimension that represents consumers' attitude towards naturalness and which aspects are assigned to this dimension. However, the main scope is to investigate whether attitudes towards naturalness are able to predict the liking of natural food. This aim is achieved by combining sensory tests of strawberry yoghurt with consumer information obtained from the means of a standardised questionnaire. Findings are discussed against the background of cultural differences. Descriptive and bivariate statistical methods, such as ANOVA, contingency analysis and correlations, are used for further data analysis.

Chapter III: Excursus

The article III, "*Developing an authenticity model of traditional food specialties: does the self-concept of consumers matter?*", provides an excursus into the topic of authenticity of traditional food specialties. Thereby, it also pursues the objective to gain a better understanding of consumer food choice behaviour. Due to many similarities between organic products and traditional specialties, which will be discussed in the following, findings from this study may also be applied in the context of organic food.

Traditional food specialties are defined as foods that are characterised by particular qualitative aspects and by a specific cultural identity (Jordana, 2000). As for organic products, producers of traditional food specialties have the possibility to have their products certified by the European Union if they produce them according to certain production standards, which in turn enables them to use one of the following labelling schemes: PGI (protected geographical indication), PDO (protected designation of origin) or TSG (traditional specialties guaranteed). Also, the consumers' perception of some quality aspects shows commonalities between both food categories. In general, both are associated with superior quality (Pieniak et al., 2009). Specifically, they are perceived as being more sustainable (Asebo et al., 2007; Risku-Norja et al., 2008) and also more natural (Pieniak et al., 2009). Finally, like the organic food market, the market for traditional specialties represents a niche, i.e., a market segment within the larger marketplace consisting of groups of consumers who have similar demographic, buying behaviour and/or lifestyle characteristics (Thilmany, 2008) (although in the organic food market the trend of mainstreaming and conventionalisation is becoming more and more apparent (Berlin et al., 2009; Eden et al., 2008; Pugliese et al., 2013)).

In addition to the similarities of the analysed product categories and markets, in the broader sense, the scope of article III fits in the research objective of this dissertation since it deals with the perception of a product attribute, namely authenticity, which is assumed to influence consumers' food choices. The study aims at developing a model that considers the antecedents (consumers' identification with the product) and consequences (purchase intention) of the perceived authenticity of a PDO-product. To this end, a structural equation model is proposed.

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Chapter I: Organic food consumption behaviour

I Consumption behaviour regarding organic food from a marketing perspective – A systematic literature review

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Abstract

There are many publications focusing on diverse aspects of marketing research for organic products. However, so far there have been very few attempts to provide an overall synthesis of current knowledge. The present study therefore gives an overview of marketing research for organic food consumption, enabling the identification of research strengths and deficits. The review analyses a total of 279 research studies published between January 2000 and December 2011. The structure of this review was derived from the concept of the consumer-oriented marketing mix (4C's), taking into account consumer value and benefits, cost to the consumer, convenience and communication. The studies were systematically evaluated according to sampling procedures, methods of data analysis as well as main outcomes. The results of this qualitative analysis reveal a high density of publications, especially for the period from 2008 to 2011. The most investigated topics are cost to consumer and consumer value and benefits. Nevertheless, there are still many aspects within these research areas that have not yet been addressed, such as ecological packaging, price knowledge and price processing. The research areas communication and convenience in terms of places of purchases are also less intensively researched.

Keywords: Organic food consumption, organic food marketing, consumer behaviour, systematic literature review, research gaps

1 Introduction

The organic food sector experienced massive growth since the end of the last century (Sahota 2011). Consumers increased interest in, and awareness of, food quality, and they assume safety to be the consequence of several interacting factors, such as various food scandals like the BSE-crisis, intensive promotion of organic standards (e.g., the implementation of the Bio-Siegel in Germany or the National Organic Program by the USDA (U.S. Department of Agriculture)) as well as the “conventionalisation” of the organic food industry (Aertsens et al. 2009a; Codron et al. 2006; Naspetti and Zanolli 2009). These developments in the organic food sector have also left their mark in the international scientific literature, with the publication of an increasing number of research articles dealing with the marketing and consumption of organic food. In spite of the large number of publications, researchers rarely conduct meta-analyses and reviews of the numerous results for this field. There are a few cases in which researchers attempt to give an overview of the state of the art. However, these mostly focus on single facets of organic food demand and/or sales. Aertsens et al. (2009b), for example, address a subdomain of consumer behaviour by describing the status quo of research on personal determinants of organic food consumption. Similarly, Hughner et al. (2007) focus on studies that deal with purchasing motives and aspects that deter the consumption of organic food products. Schleenbecker and Hamm (2013) report findings regarding consumers' perceptions of organic product characteristics, while Yiridoe et al. (2005) conducted a review of em-



empirical studies on consumer preferences for and attitudes towards organic vs. conventional food. Thøgersen (2010) took an approach to explore the various reasons for differences in sustainable and organic food consumption between countries. Pearson et al. (2010) review research on the distribution and marketing of organic food as well as on the consumer demanding it. A further review by Adams and Salois (2010) focuses on the literature that allows a comparison between organic and local food, in order to analyse how they affect each other. Other literature analyses focus on organic food consumption behaviour in specific countries such as Romania (Popa et al. 2011) or Ireland (Tobin et al. 2011).

Nevertheless, to the best knowledge of the authors, a review that comprehensively considers the four classic main areas of marketing with focus on the consumer (consumer value and benefits, cost to the consumer, convenience and communication) in the context of organic food does not exist. The vast number of publications has been poorly summarised in meta-analyses or reviews so far and thus makes it difficult for scientists and practitioners to get an overview of relevant results. Also, an extensive revision and quantification of publications with regard to content serves the science by identifying research fields that have not yet been covered and reporting disproportionately researched ones. In addition, it may reveal contradictory findings. Usually, studies are neither replicated nor critically reassessed. An attempt to clarify contradictions in the area of determinants of organic food consumption is made, for example, in the meta-analysis by Aertsens et al. (2009b).

Moreover, a comprehensive literature review could support marketers, producers and retailers of the organic food sector. Practitioners are often hindered by a lack of, or unclear and contradictory, recommendations for practical application, which requires them to make their own interpretation. Moreover, results are commonly published by a range of organs, e.g. in different journals, edited volumes and online-documents. Although practitioners can search the comprehensive international scientific database 'Organic Eprints' for relevant results and recommendations, it is questionable if such instruments are actually used in companies due to time pressure. Thus, the present study provides an opportune way for researchers as well as practitioners to get a comprehensive overview of the state of the art of organic food consumption behaviour and to find structured results regarding its diverse aspects.

Thus, the present qualitative literature study aims to fill the identified gap, by not only outlining the articles based on relevant quantitative and qualitative surveys and their findings, but also by identifying insufficiently investigated research areas and knowledge gaps in the field of organic food marketing. This is done by systematically reviewing and analysing the focal literature and reporting results in both a qualitative and quantitative manner. The review is based on English language studies from internationally publishing peer-reviewed journals from the time period between January 2000 and December 2011. After presenting the methodological procedure of this literature review, its results, in terms of applied methods and content, will be summarised for each of the four C's, i.e., the elements of the consumer-oriented version of the marketing-mix. The subsequent discussion

will synthesise the findings and highlight existing research deficits. These findings will finally be evaluated regarding scientific and practical relevance.

2 Methods

McCarthy (1960) originally proposed operational marketing to be based on the four elements of the classical marketing mix – product, price, promotion and place. Our literature review focuses on consumers and their consumption behaviour regarding organic food. Thus, for the structure of this review, we use the revised concept suggested by Lauterborn (1990) that considers the above mentioned elements from a consumer perspective, namely consumer value and benefits, costs to the consumer, convenience and communication. For each marketing element we identified the sub-categories, which were mostly derived from the marketing literature, as follows.

- **Consumer value and benefits:** The product represents a bundle of values and benefits demanded by the consumers (Dennis et al. 2005). They obtain values and benefits from different product-related elements that build the categories for this research field: *product characteristics, packaging, product labelling, product innovation, elimination and modification, product range* and *value added services* such as guarantee and customer service (Kotler and Keller 2012; Armstrong and Kotler 2013).
- **Costs:** The costs equal the sum of all values that a consumer pays for a product or a service (Armstrong and Kotler 2013). Since consumers perceive and evaluate price information differently (Belz and Peattie 2012), the main topics analysed here are *price cognition, perception, and processing of price information* as well as *willingness to pay*.
- **Communication and information needs:** Communication includes all the ways in which a company communicates with its customers (Dennis et al. 2005). The message, i.e., the set of words, pictures or symbols, and the communication instrument, i.e., the channel through which message is delivered (such as advertising, personal selling, sales promotion, public relations, online marketing and additionally, sponsoring and event marketing) form the major parts of the communication strategy (Armstrong and Kotler 2013; Belz and Peattie 2012; Kotler et al. 2005). We identify the categories *communication instruments, communication messages* and *general communication* in order to discuss the current literature concerning communication.
- **Convenience and distribution:** Convenience considers consumers' choices for purchase venues that are convenient to them (Dennis et al. 2005). Several trade outlets are relevant for the organic food sector (Coughlan et al. 2006) and serve as sub-topics of this research field: *conventional food retail, Internet, direct sale from farmers to consumers, and specialised food retail*. In addition to these, the categories *availability* and *store choice behaviour* consider all articles that do not concentrate on a specific purchase venue but broadly discuss sales channels for organic food with regard to availability and store choices.

Eight international electronic databases (AgEcon, Cab Abstracts, EBSCO, EconPapers, Emerald Insights, NAL Catalog, Science Direct, Web of Science) were screened using a structured list of search terms (Table 1), which were derived from the prevalent marketing literature. We combined search terms of type 1 with search terms of each topic from type 2 and selected articles if at least one of the search terms appeared in the abstract of the publications. For the screening we used British as well as American spellings, although Table 1 only reports keywords with British spellings. The period reviewed was spanned from January 2000 to December 2011.

Table 1: Search terms

Type	Topics	Search terms
Type 1	Organic	((organic AND farming) OR (organic AND agriculture) OR (organic AND food)) AND ((consum* ¹) OR (private AND household*))
Type 2	Consumer value and benefits	((product AND character) OR consistence OR (product AND styling) OR style OR (product AND quality) OR (product AND design) OR (product AND colour) OR (product AND packaging) OR package OR (package AND size) OR brand OR (product AND brand) OR label OR labelling OR (product AND innovation) OR elimination OR modification OR (product AND range) OR (product AND line) OR (product AND assortment) OR (product AND guaranty) OR warranty OR service) AND consum*)
	Costs	((price AND perception) OR (price AND awareness) OR pricing OR (price AND adjustment) OR cost* OR (price AND policy) OR (willingness-to-pay) OR WTP OR (price AND behaviour*) OR purchase*)
	Communication and information needs	(advertising OR promotion OR marketing OR (sales AND promotion) OR (personal AND selling) OR (direct AND marketing) OR communication OR fairs OR (trade AND show*) OR (public AND relations) OR events OR (media AND work) OR relations OR (relationship AND management) OR CRM)
	Convenience and distribution	(distribution OR (sales AND channel) OR shop OR shopping OR purchase OR purchasing OR store OR retailer OR (retail AND market) OR grocery OR PoS OR (point AND of AND sale) OR (health AND food AND store) OR (wholefood AND shop) OR (organic AND supermarket) OR preference OR accessibility OR availability OR distance)

Only English language articles published in peer-reviewed scientific journals were considered for further analysis. Theses, dissertations, project reports and conference contributions were excluded. Publications fulfilling these requirements were further checked for the following inclusion criteria regarding the content:

- **Organic food consumption:** Eligible articles had to focus on the consumption of organic food or refer to it as one of the primary research concerns. Articles predominantly focusing

¹The asterisk (*) denotes a wildcard used as a substitute for any other character or characters. For example, consum* captures the words consume, consumption, consumer etc., all of which are relevant for the search.