

Sensory attributes and marketing: an exploration of Italian organic producers' perspective

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Sensorische Eigenschaften und sensorisches Marketing aus der Perspektive italienischer Bioproduktehersteller

Introduction

Currently, the agro-food sector is exploring novel strategies and techniques to satisfy consumer expectations, aligned with a new marketing approach or paradigm called 'experi-

ential marketing'. This approach focuses on enabling and encouraging customers to become involved in memorable emotional experiences. Sensory marketing may be defined as "a set of key levers which are controlled by producers and/or distributors in order to create a specific multi-sen-

Zusammenfassung

Die vorliegende Studie untersucht Erfahrungen, Erwartungen und Wahrnehmungen von Herstellern von Lebensmitteln aus ökologischem Landbau im Hinblick auf das Verbraucherverhalten. Untersucht werden sensorische Analysen von Bio-Lebensmitteln. Dazu wurden Interviews mit zehn wichtigen italienischen Erzeugern ökologischer Lebensmittel durchgeführt und mit Hilfe der quantitativen und qualitativen Inhaltsanalyse sowie Concept Mapping analysiert. Die Ergebnisse zeigen, dass Erzeuger ökologischer Lebensmittel sensorische Analysen im Allgemeinen nicht-systematisch und nicht-standardisiert durchführen. Allerdings erkennen sie trotz der hohen Kosten und des Mangel an Sachkenntnis die Notwendigkeit sensorischer Tests. Deren Zuverlässigkeit ist zu verbessern, um Verbraucherwünsche besser erfüllen zu können. Es wurde hervorgehoben, dass sich sensorische Eigenschaften von ökologisch produzierten Lebensmitteln im Lauf ihrer Haltbarkeitsdauer verändern. Es scheint zunehmenden Bedarf an Bildungsinitiativen zu geben, die die sensorischen Fähigkeiten und das Wissen über die Sensorik seitens der Verbraucher verbessern helfen sollen. Die empirischen Ergebnisse werden dargestellt, abschließend folgt ein Ausblick für die weitere Forschungsaktivität.

Schlagworte: Bio-Lebensmittel, sensorische Eigenschaften, Bio-Lebensmittelerzeuger, Italien, persönliche Befragung, sensorisches Marketing, Forschung und Entwicklung (F&E).

Summary

The article explores experiences and expectations of organic producers regarding consumer-relevant information pertaining to the sensory properties of organic products. Individual interviews of ten prominent Italian organic producers were conducted and analysed, using both a qualitative and quantitative content analysis, and conceptual mapping. Results reveal that organic producers generally perform sensory analyses in a non-systematic and non-standardised way. However, despite high costs and lack of expertise associated with such tests, producers expressed the necessity to increase the use of these analyses on their products and to improve their reliability in order to better identify and meet the needs of consumers. The undesirable variation in sensory features of organic products during the shelf life was highlighted, and the need for training initiatives to improve consumer's sensory knowledge and awareness was also expressed. From these findings, suggestions for further future research are provided.

Key words: Organic food, sensory attributes, Organic producers, Italy, personal interviews, sensory marketing, research and development (R&D).

sory atmosphere around a product or service either focusing on sale outlet environment and communication, or on its own characteristics" (FILSER, 2003). Therefore, sensory marketing could potentially provide a useful tool, central to meeting the new needs and expectations of the current-day consumer.

It seems that in recent years, consumers of organic food have begun to purchase organic products also for "hedonistic" motives, such as health, taste and wellness, in addition to the better-known and more traditional "altruistic" purchasing motives, associated with environmental protection and animal welfare. This confirms that sensory attributes of food are becoming increasingly relevant in orienting food choices (SHEPHERD et al., 2005). In response, marketing strategies should consider and emphasise these attributes, more so now than was required in previous years (BRENNAN and KURI, 2002; PADEL and FOSTER, 2005). Organic food industry practitioners are beginning to consider several sensory aspects, such as flavour, odour and appearance, as important elements to be emphasised in food product development and marketing communication strategies, in order to align with the new consumer needs and shifted expectations.

The main aim of this paper is to investigate the needs of organic producers for consumer-relevant information and their experiences in consumer preferences regarding the sensory quality of organic food products. Since qualitative findings usually cannot be generalised, this study rather provides insight useful for the design of quantitative surveys aimed at segmenting consumers and assisting food producers in improving their marketing strategies.

1 Background

During the past decade, the European organic food market has been characterised by an uninterrupted growth as well as considerable changes in market structure (HAMM and GRONEFELD, 2004; SAHOTA, 2010), resulting in a significantly increased market share of such products at large retailers within the last five years (SCHAACK and WILLER, 2010).

In congruence with this developing trend, organic consumer profiles are also changing, along with their purchasing motives, with a focus shifting from traditional motivations, such as environmental protection and animal welfare, towards issues related to health, taste and wellness motivations (SPILLER and OBERMOWE, 2009). On this aspect, literature investigating the role of sensory features as drivers

of organic consumer purchasing is abundant. Many studies reveal that taste and appearance are among the most important criteria in organic food purchases (AERTSENS et al., 2009; KUCHAR and JUVANČIČ, 2010; MAGNUSSON et al., 2001; HAMZAOU-ESSOUSSI and ZAHAF 2012; AKGÜNGÖR et al., 2010; CERJAK et al., 2010; NASPETTI, 2010). Furthermore, other studies demonstrate that sensory attributes represent an important factor for specific consumer segments, who approach pragmatically the purchase of organic food products (PELLEGRINI and FARINELLO, 2009; ZHAO et al., 2007). Thus, an increasing proportion of consumers seem to be willing to pay higher prices for organic products if those products feature aspects beyond the single fact of being organically produced, such as a unique flavour or odour (LÜTH et al., 2005).

2 Data and methods

According to available literature, there appears to be a lack of research investigating the experiences, perceptions and expectations of Italian organic food industry practitioners regarding sensory issues and topics. This absence of literature necessitated the use of a qualitative exploratory approach to analyse this new topic and extract pertinent preliminary information. Qualitative approaches are particularly suitable to conduct in-depth investigations on relatively unexplored topics, as they serve as a tool through which relationships between complex concepts and unknown influencing factors relevant to the topic can be identified (MOLTENI and TROILO, 2007). The adoption of these techniques leads to collection of open-ended, emerging data, with the primary intention to develop themes from the data (CRESWELL, 2003). Qualitative research methods are particularly suitable to approach under-studied phenomena and to develop hypotheses for further research steps, since they are largely inductive (CRESWELL, 2003; HARRIS et al., 2009). Some examples from literature (CANAVARI et al., 2009; COSTA and JONGEN, 2006) confirm that prior to accessing new markets or launching new products, qualitative exploratory approaches are required to provide a context and foundation for further quantitative analyses. Since qualitative techniques are generally conducted on small numbers of pre-selected targeted participants, they enable to discern and assess the relevance of interviewee's experience facilitating the understanding of central and fundamental features of a specific phenomenon (HARRIS et al., 2009).

Among the available qualitative research methods, in-depth interviews were chosen, as they are considered optimal for collecting data on an individual's history, perspective, and experience.

A non-probabilistic convenience sample of Italian organic producers was selected as relevant "key informants" amongst organic food producers. In order to have a broader perspective about the relevance of sensory features for organic food companies, interviewees operating in different supply chains were selected. Particular attention was given to individuals with a key role in a company's organization, knowledge management and promotion of organic products. Ten semi-structured qualitative interviews^[1] were conducted during the summer of 2009. The interview schedule comprised 5 principal discussion themes, listed below:

- philosophy or market approach of the company;
- previous experiences in sensory-related issues;
- sensory strengths and weaknesses of organic products;
- consumers' attitude towards sensory features;
- strategies and development.

All interviews were transcribed verbatim and analyzed applying a quantitative content analysis technique, similar to the approach adopted by CANAVARI et al. (2009), and described below:

- *Qualitative content analysis.* The first step of the analysis was a content summarising approach, which enabled an initial screening to highlight the most interesting elements, named Semantic Categories (SC), arising from each interview. In addition to aspects of direct conversations and semantic categories, aspects of non-oral communication and operator characteristics were also considered.
- *Quantitative content analysis.* In-depth analysis of interview content was conducted by determining the frequency of specific semantic categories, with the aim of measuring the occurrence of certain topics (MOLTENI and TROILO, 2007). The quantitative approach is more structured than a qualitative one, more deductive and oriented towards the reduction of information into a limited number of representative concepts. It facilitates the management of qualitative data using statistical analysis, although it must be noted that information obtained still has a qualitative value. A database was created from the verbatim transcripts of the 10 interviews. Subsequently, the software "Text Smart", taken from the statistical package SPSS was used for the quantitative evaluation of con-

tent. Sub-texts (short portions of text discussing the same topic) were identified to highlight segments of conversation with high informative value, namely relevant concepts related to the themes under discussion. Then, above-mentioned segments were aligned to specific semantic categories which could indicate (sum up) their meanings. According to BOLASCO et al. (2004) the importance of identified semantic categories should not be exclusively measured by simply counting the frequency with which headwords representing the semantic categories are mentioned during the discussion, but also by determining how common semantic categories were in the discussion. Therefore, to standardize the value of each semantic category with the actual relevance assumed during the discussion, the *Term Frequency-Inverse Document Frequency* (TFIDF) index was calculated:

$$TFIDF = TF * IDF = TF * \log(N/F_t)$$

TF = number of occurrences of each semantic category in textual database

IDF = $\log(N/F_t)$; this index defines how common the semantic category is in the discussion

N = overall number of responses (sub-texts) related to the theme under discussion

F_t = number of responses (sub-texts) in which a term representing a semantic category is mentioned

TFIDF is used in Text Mining procedures to evaluate the importance of headwords appearing in the text (SALTON and BUCKLEY, 1988). The analysis enabled the evaluation of the frequency with which semantic categories occur with their relative TFIDF values. This allowed the relevance of certain semantic categories to be identified and defined into specific themes for investigation.

- *Conceptual positioning maps.* Maps using Multidimensional Scaling (MDS) were constructed. The frequency of occurrence of the semantic categories (collected by quantitative content analysis) were used to construct co-occurrence matrices utilized as a base from which the proximity between all semantic categories could be calculated. In order to obtain measures of proximities from the available data, the PROXSCAL algorithm was applied (ENNAS, 2010; LEYDESDORFF and VAUGHAN, 2006). As a result, 2-dimensional maps were drawn, highlighting the relative position of each semantic category for each theme of discussion. Semantic categories were utilized to interpret and name the dimensions of the maps.

3 Results

3.1 Sample description

Interviewees were all organic primary producers and/or processors producing the most typical organic products located in Northern-Central Italy. More specifically, the operators were selected as follows: two operators specialised in dairy products, two in sausages, two in apple production, one in the production of tomato sauce and biscuits, one in biscuits, one in sunflower oil and one is involved in the production of apples, sausages and tomato sauce. Five of the companies selected do business exclusively on the organic market, two companies mainly in the organic market, and the remaining three companies conduct business mainly in conventional products.

Main findings

The semantic categories retrieved during discussions are listed in Table 1. The discussion of results will focus on Themes 2, 3, 4 and 5. Conceptual maps were drawn for Theme 3 and 4.

Theme 2: Previous experiences in sensory-related issues

Data analysis reveals that organic producers conduct empirical sensory test (SC10) that are generally performed in a non-systematic and non-standardised way within the firm (SC14) with non-trained assessors (SC11) (Table 2). Moreover, it seems that sensory tests are performed with the aim of comparing sensory features of organic products of the company to those of the competitors (SC31), to retrieve information on sensory weaknesses, and to improve sensory features and product development (PD) (SC27). Finally, raw materials

Table 1: Semantic categories – complete list
Tabelle 1: Semantische Kategorien – vollständige Liste

OBJECTIVE/THEME	SEMANTIC CATEGORY	ID
1. PHILOSOPHY OR MARKET APPROACH	High quality products	SC01
	Product standardisation/comparison to benchmarks and market leaders	SC02
	Price policy	SC03
	Guarantee of “organicity” (natural, certified)	SC04
	Product range	SC05
	Support to local suppliers	SC06
	Supply chain integration	SC07
	Image/Reputation/Brand	SC08
2. PREVIOUS EXPERIENCES IN SENSORY-RELATED ISSUES	Scientific tests	SC09
	Empirical tests	SC10
	Tests with non-trained assessors	SC11
	Tests with trained assessors	SC12
	Outsourced tests	SC13
	Internal tests	SC14
	Absence of tests	SC15
3. SENSORY STRENGTHS AND WEAKNESSES	Authenticity, naturalness and intensity of sensory features	SC16
	Variability of sensory features	SC17
	Influence of production methods and environment	SC18
	Influence of raw materials	SC19
4. CONSUMERS' ATTITUDES TO SENSORY ASPECTS	Similarity with conventional counterparts	SC20
	Increased importance of sensory features	SC21
	Sensory features as relevant purchase motivation	SC22
	Role of education and training	SC23
	Positive Willingness-To-Pay	SC24
	Negative Willingness-To-Pay	SC25
	Sensory features as niche/high quality product indicator	SC26
5. STRATEGIES AND DEVELOPMENT	Acquiring information on sensory weaknesses, improving sensory features and product development (PD)	SC27
	Exploration of consumers' behaviour and expectations	SC28
	Improving marketing communications	SC29
	High costs for SMEs	SC30
	Benchmarks	SC31

Table 2: Semantic Categorisation: TFIDF Index (N = 43; Theme 2: Previous experiences in sensory-related issues)
 Tabelle 2: Semantische Kategorisierung: TFIDF-Index (N = 43; Thema 2: Vorerfahrungen im Bereich Sensorik)

SEMANTIC CATEGORIES	TF (#)	Ft (#)	TFIDF
SC14 – Internal tests	11	11	6,51
SC10 – Empirical tests	7	7	5,52
SC11 – Tests with non-trained assessors	7	7	5,52
SC31 – Benchmarks	5	5	4,67
SC18 – Influence of production methods and environment	4	3	4,63
SC27 – Acquiring information on sensory weaknesses, improving sensory features and PD	3	2	4,00
SC16 – Authenticity, naturalness and intensity of sensory features	3	3	3,47
SC19 – Influence of raw materials	3	3	3,47
SC30 – High costs for SMEs	2	1	3,27
SC15 – Absence of tests	2	2	2,66
SC17 – Variability of sensory features	2	2	2,66
SC12 – Tests with trained assessors	1	1	1,63
SC13 – Outsourced tests	1	1	1,63
SC25 – Positive Willingness-To-Pay	1	1	1,63
Specific occurrences	54		

TF = number of occurrences of each semantic category in textual database; F_t = number of responses (sub-texts) in which a term representing a semantic category is mentioned; IDF = how common the semantic category is in the discussion.

(SC19) as well as production methods and environment (SC18), as for example the degree of processing, seasonal environmental trends and post-harvest treatments, can influence the sensory features of organic products and overall product performance tested or compared with competitors.

Theme 3: Sensory strengths and weaknesses

Outcomes of the qualitative and quantitative content analysis consistently demonstrate that sensory strengths and weaknesses of organic food are affected by “endogenous” factors, such as raw materials (SC19) and “exogenous” factors, such as the influence of production methods and environment (SC18) (Table 3).

Discussions showed that organic food is characterised by authenticity, naturalness and higher intensity of sensory features when compared to conventional non-organic

counterparts (SC16). However, the main weakness of organic food is the higher variation of sensory characteristics (SC17) during shelf life, which on the long term may create consumer acceptability problems. This is particularly relevant in the context of pragmatically motivated consumers, who tend to compare organic product performance with that of the conventional equivalents (SC20).

The use of MDS allows the positioning of semantic categories on a bi-dimensional map (Figure 1) which may pose challenges in interpretation mainly because of a high degree of subjectivity and, consequently, a high risk of bias. Consequently, the interpretation and evaluation of the map and its dimensions was performed by the team of researcher: initially separately, then with subsequent comparisons between each interpretation, and lastly after discussion, final interpretations and conclusions were made. Despite

Table 3: Semantic Categorisation: TFIDF Index (N = 54; Theme 3: Sensory strengths and weaknesses)
 Tabelle 3: Semantische Kategorisierung: TFIDF-Index (N = 54; Thema 3: Sensorische Stärken und Schwächen)

SEMANTIC CATEGORIES	TF (#)	Ft (#)	TFIDF
SC19 – Influence of raw materials	15	9	11,67
SC16 – Authenticity, naturalness and intensity of sensory features	19	17	9,54
SC18 – Influence of production methods and environment	13	11	8,98
SC22 – Sensory features as relevant purchase motivation	4	4	4,52
SC17 – Variability of sensory features	3	2	4,29
SC20 – Similarity with conventional counterparts – market leaders	2	2	2,86
SC05 – Product range – Availability	1	1	1,73
SC08 – Image/Reputation/Brand	1	1	1,73
SC21 – Increased importance of sensory features	1	1	1,73
Specific occurrences	59		

TF = number of occurrences of each semantic category in textual database; F_t = number of responses (sub-texts) in which a term representing a semantic category is mentioned; IDF = how common the semantic category is in the discussion.

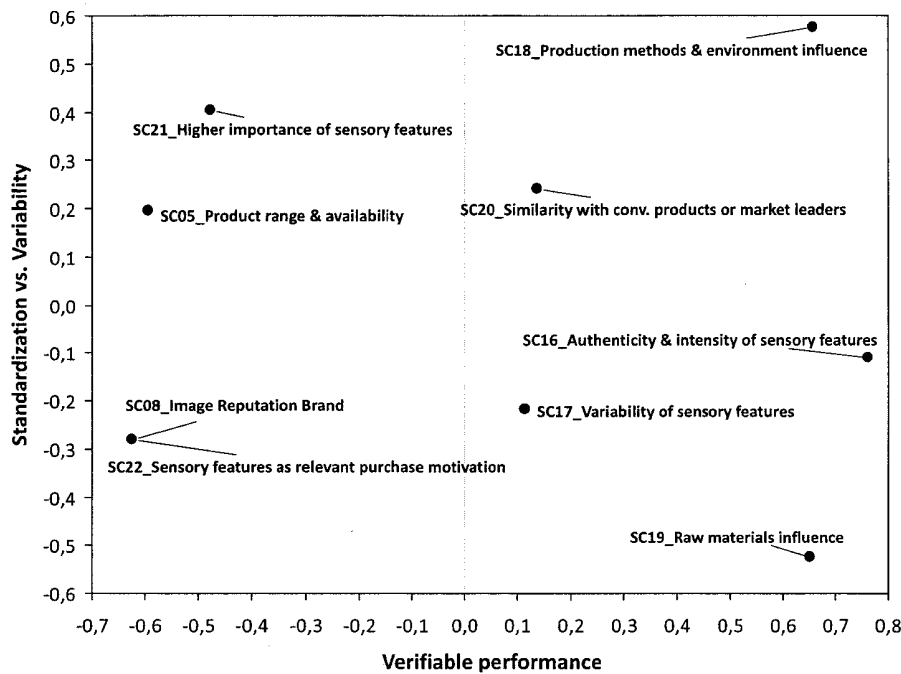


Figure 1: Positioning of the semantic categories of Theme 3: Sensory strengths and weaknesses

Abbildung 1: Verteilung der semantischen Kategorien bei Thema 3: Sensorische Stärken und Schwächen

attempts to minimise the influence of subjectivity in the interpretation of MDS, it is necessary to point out that this factor cannot be completely eliminated.

Considering the right side of the horizontal axis (Dimension 1), semantic categories specifically connected with the discussed theme can be found (factors affecting sensory aspects: SC18, SC19, SC16), while on the left there are semantic categories concerned with the moment of consumer purchase (SC05, SC08) and preferences (SC21, SC22). Dimension 1 seems to encompass, from right to left, all the elements which define and assess the good performance of organic food with respect to sensory aspects. On the right side of the axis, objective elements, such as origin of raw materials, production and processing techniques (which are supposed to have a positive influence and contribute to authenticity, uniqueness and naturalness), are positioned. On the left there are the “perceptual elements”, such as consumer appreciation of sensory aspects, images and reputation, which confer an added value to organic products due to their distinctive sensory performance. In the map, “Credence” attributes concerning organic production are on the right side of Dimension 1, whereas “Experience” attributes and “Search” quality cues regarding consumers’ perception are on the left. Consequently, the horizontal axis can therefore be labelled as “Verifiable Performance”.

As for Dimension 2 (the vertical axis), considering the semantic category on the bottom (SC19 – Influence of raw materials and ingredients) and those at the opposite side (SC18

– Influence of production methods and environment; SC20 – Similarity with conventional products or market leaders), it is possible to argue that the vertical axis represents the “Standardization vs. Variability” dimension. Organic production could be influenced by some specific particularities of raw materials and of the organic production method itself, which could render organic products unique but simultaneously could lead to variation in sensory features. It is possible that this variability would not be appreciated by consumers, who are accustomed to a standardised performance of food products, even when considering sensory aspects.

Theme 4: Consumers’ attitudes towards sensory aspects

Interviewees generally agreed that initially organic consumers were motivated by ideological motivations such as health preservation, environmental protection, or animal welfare, whereas more recent organic consumers (also called “Pragmatic consumers”) frequently compare organic products to conventional non-organic counterparts or market leaders in the quality of sensory features (SC20). These findings suggest that there is an increasing importance of the sensory aspects of organic products for organic consumers, further confirmed by high frequencies and TFIDF values of SC21 and SC22 (Table 4). The increasing importance of sensory features in consumer choice (SC21) is closely associated with the fundamental role of sensory education and training (SC23), seemingly important in affecting the level of “acceptance” of some specific sensory peculiarities of organic products.

Table 4: Semantic Categorisation: TFIDF Index (N=91; Theme 4: Consumer attitudes towards sensory aspects)

Tabelle 4: Semantische Kategorisierung: TFIDF-Index (N = 91; Thema 4: Konsumenteneinstellung gegenüber sensorischen Aspekten)

SEMANTIC CATEGORIES	TF (#)	Ft (#)	TFIDF
SC22 – Sensory features as relevant purchase motivation	23	17	16,76
SC21 – Increased importance of sensory features	13	11	11,93
SC23 – Role of education and training	8	6	9,45
SC20 – Similarity to conventional counterparts – market leaders	8	7	8,91
SC25 – Negative Willingness To Pay	4	4	5,43
SC18 – Influence of production methods and environment	3	3	4,45
SC24 – Positive Willingness To Pay	3	3	4,45
SC26 – Sensory features as niche/high quality products detectors	3	3	4,45
SC16 – Authenticity, naturalness and intensity of sensory features	2	2	3,32
SC14 – Internal tests	1	1	1,96
SC17 – Variability of sensory features	1	1	1,96
SC19 – Influence of raw materials	1	1	1,96
SC29 – Improving marketing communication	1	1	1,96
Specific occurrences	71		

TF = number of occurrences of each semantic category in textual database; F_t = number of responses (sub-texts) in which a term representing a semantic category is mentioned; IDF = how common the semantic category is in the discussion.

With regard to the relevance of sensory aspects in influencing purchase motivation (SC22), qualitative analysis indicates that while appearance is the most important sensory characteristic considered during the first purchase, taste seems to drive the re-purchasing decision.

Furthermore, with regard to consumers' willingness to pay for other sensory characteristics of organic food, interviewees had difficulties expressing an opinion due to their inability to consider sensory features separately from all other features that characterise organic food.

Through MDS, a second map was drawn (Figure 2), excluding semantic categories with low linkages to other categories.

Considering the position of semantic categories along the vertical axis (Y-axis), at the top of the axis, categories associated with the potential of standardising food product performance (SC20, SC18) can be observed, while at the bottom, categories which focus on the ability to perceive uniqueness and the higher value conferred by sensory peculiarities (SC23, SC26) are positioned.

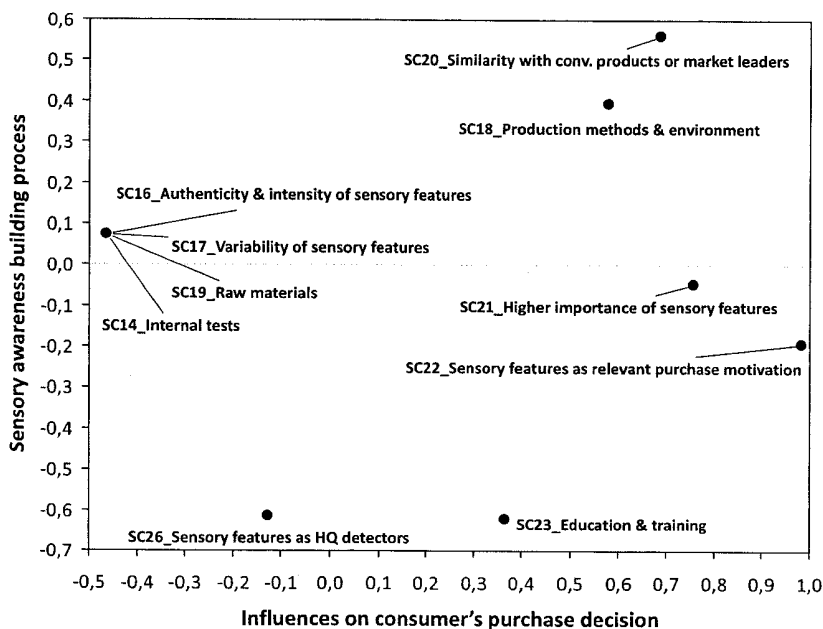


Figure 2: Positioning of the semantic categories of Theme 4: Consumers' attitudes towards sensory aspects)

Abbildung 2: Verteilung der semantischen Kategorien von Thema 4: Konsumenteneinstellung gegenüber sensorischen Aspekten

Consequently, Dimension 2 (vertical axis) could be labeled as the "Sensory Awareness Building Process", in which education and training play a fundamental role in guiding consumers from "benchmark-oriented" sensory perceptions to a broader and more aware attitude towards sensory peculiarities.

Dimension 1 (horizontal axis) can be interpreted as the "Influences On Consumer's Purchase Decision". Sensory aspects play a fundamental role in influencing the final buying decision (SC21, SC22). Although in some cases sensory peculiarities of organic food (SC16, SC19) act as high quality indicators (SC26), they are still often compared to conventional non-organic counterparts or market leaders (SC20), which are less variable in key features, a consistency which consumers perceive and have become accustomed to. The positioning of SC18 on the Y-axis, near SC20, could possibly be explained by referring specifically to organic processing methods and consequently to processed organic products, which generally have a more "standardised" sensory performance when compared to conventional equivalents.

Theme 5: Strategies and development

The majority of interviewees expressed interest in acquiring information on sensory weaknesses and on improving sensory features and Product Development (SC27), as well as exploring consumer behaviour and expectations (SC28) (Table 5). In particular, producers intend to collect information about sensory weaknesses of their product to facilitate enhanced product sensory quality, to avoid consumer rejection and to improve the food product development process.

Except for apple producers, medium-to-large operators stated the intention to start performing sensory analysis in a more scientific way than was previously conducted. In contrast, small producers, even though stating an interest, claimed sensory tests were economically not feasible due to high associated costs. Only one interviewee demonstrated

interest in improving marketing communications to include sensory aspects. This outcome is possibly due to the fact that almost none of the interviewees are interacting directly with consumers, and marketing activities have to be oriented towards the retailers.

It is noteworthy to consider that most of the interviewees expressed the desire to carefully evaluate their competitors and the market environment in which business is conducted. Additionally, the necessity to evaluate competitors' product positioning to improve future market planning and strategy, was also mentioned (SC31).

4 Final remarks

This research represents an initial step in the analysis of sensory marketing from organic operators' perspective that could provide useful elements and indications for further surveys. Limitations of the study arose primarily through the difficulties in extracting useful information about sensory issues from the interviewees, possibly due to the general lack of experience by Italian organic producers in sensory marketing. The adoption of quantitative content analysis and conceptual maps was an attempt to focus and crystallise key elements that emerged from the initial qualitative research approach, although it must be considered that information obtained in this study still has a qualitative value. The findings were quite consistent, despite intrinsic differences among companies selected in the research, such as company features (size, business, market, etc.), products and supply chains. Some common traits were detected that influence experiences, needs, expectations and perceptions of organic food operators, with regard to sensory features and sensory marketing.

First, in previous sensory test experiences, it seems that organic food industry operators, although recognising that

Table 5: Semantic Categorisation: TFIDF Index (N=22; Theme 5: Strategies and development)

Tabelle 5: Semantische Kategorisierung: TFIDF-Index (N = 22, Thema 5: Strategien und Entwicklung)

SEMANTIC CATEGORIES	TF (#)	Ft (#)	TFIDF
SC27 – Acquiring information on sensory weaknesses, improving sensory features and PD	7	6	3,95
SC28 – Explore consumers' behavior and expectations	5	4	3,70
SC31 – Benchmarks	2	2	2,08
SC01 – High quality products	1	1	1,34
SC02 – Products standardisation/comparison with benchmarks and market leaders	1	1	1,34
SC29 – Improving marketing communications	1	1	1,34
Specific occurrences	17		

TF = number of occurrences of each semantic category in textual database; F_t = number of responses (sub-texts) in which a term representing a semantic category is mentioned; IDF = how common the semantic category is in the discussion.

sensory properties represent a fundamental buying motive for consumers, generally do not perform professional sensory tests on their products, mainly because of the high costs of sensory tests and lack of expertise.

Second, concerning strengths and weaknesses of sensory properties, interviewees stressed that these features are highly dependent on and influenced by raw materials, types of product, organic production methods and environment, to a much greater extent than conventional counterparts. As a consequence, sensory properties of organic products are highly subject to variability, also during shelf life, which can negatively affect consumers' acceptability.

Third, interviewees pointed out that the sensory properties of organic products are important for consumers' choices, especially for pragmatic consumers. Sensory features seem to represent, in the opinion of the interviewees, an important driver both in the case of the first purchase (appearance) and in re-purchasing (taste). Moreover, the role of sensory properties as drivers of organic food consumption is strongly associated with sensory education and training, affecting the level of "acceptance" of some specific sensory peculiarities of organic products. Furthermore, even though sensory aspects play a role in purchase decisions, in some cases indicating a "high-quality product", they are still compared to the less variable sensory features of conventional counterparts, to which consumers are more accustomed.

Lastly, regarding strategies and development, interviewees expressed interest in acquiring more information on sensory weaknesses of their products, with the aim of improving sensory features and better defining product development processes or new product development strategies. This is congruent with NASPETTI (2010), who emphasized the importance of producers improving the sensory features of their food products to more adequately meet consumers' needs. In addition, interviewees expressed the need to plan scientific sensory tests with trained personnel. Within a market context, all operators expressed an interest in exploring consumers' behaviour and expectations, as well as the necessity to evaluate competitors' product positioning to improve future market strategies. In this regard, further research exploring experiences and expectations of organic consumers as well as sensory weaknesses of organic products is recommended. Such information would provide useful insights for organic practitioners to improve sensory features of organic products, as well as to devise improved marketing communications for new and emerging organic consumer target.

Acknowledgements

The financial support of the Commission of the European Communities and organic SMEs of Switzerland, Germany, The Netherlands, Poland, Italy and France for Project No. 218477-2 (ECROPOLIS) is acknowledged. The research conducted in Italy was performed within a research framework also including the other target countries. The results of the multiple-country study are available in the report by Maciejczak et al. (2009), entitled 'Comparative report about information from supply chain actors'. Deliverable No. 4.1 of ECROPOLIS Project, Warsaw University of Life Sciences-SGGW, Faculty of Economic Sciences (WULS), Warsaw, Poland, downloadable at the following URL: http://osis.ecropolis.eu/fileadmin/documents/level3/Ecropolis_id350_ComparativeReportInfoSupplyChain.pdf

Note

- ¹ The semi-structured questionnaire adopted was designed in collaboration with ECROPOLIS partners, and was used as common track to perform the tasks of the Work Package 4.1 of the project mentioned above.

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Submitted: June 7th 2012
Accepted: November 15th 2012