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## **Role of Sensory Attributes in the Food Marketing: An Exploratory Analysis in the Italian Organic Food Producers**

***Daniele Asioli, Maurizio Canavari, and Erika Pignatti***

*Department of Agricultural Economics and Engineering (DEIAgra)*

*Viale Giuseppe Fanin, 50, I - 40127 Bologna, Italy*

*daniele.asioli@unibo.it ; maurizio.canavari@unibo.it ; erika.pignatti@unibo.it*

### **Abstract**

This paper explores in-depth sensory experiences, expectations and perceptions of organic producers regarding the role played by sensory properties in organic market, using a qualitative marketing research technique. Ten in-depth interviews supported by semi-structured questionnaire were performed in Italy during 2009.

Findings shows that organic producers stated that sensory tests are mainly carried out empirically, they are not systematic and often performed by non trained assessors, even if they are completely aware of the importance of sensory information. Interviewees think that sensory attributes may play a primary or at least complementary role in consumer choice in order to adding-value and drivers for purchase motivations, but at the same time highlighted also the negative influence of variability in sensory features and the key role played by sensory education and training. Finally, organic producers expressed the need and the intention to plan scientific sensory tests with trained personnel in order to improve sensory properties of organic food although smallest companies declared difficulties since the high costs of sensory analysis.

**Keywords:** *Organic food, sensory attributes, organic food producers, sensory marketing, organic consumers*

### **1 Introduction**

Nowadays we are in the middle of a big revolution that will replace traditional feature and benefit marketing with experimental and emotional marketing that in turn is associated with changes of consumers needs and expectations (Schmitt 1999). Therefore, food companies should look for different possibilities concerning how to satisfy consumers expectations taking into account a new marketing approach on the basis of a paradigm called ‘experiential marketing’, which is focused on letting customers be involved into unforgettable emotional experiences. The objective of experiential marketing is to identify and communicate to consumers sensory stimuli more suitable to product characteristics and consumer expectations in order to delight them (Messaggio et al. 2009; Santini et al. in press). In this context, food could assume not only a functional value, such as for instance a source of nourishment, but it also can provide emotions. For instance, the odour of a fresh apple just picked from the tree could recall memories linked with special emotions to people who had experience of the countryside. In this framework Sensory marketing could become a driving tool in order to meet new consumers needs and expectations. Sensory marketing is defined as a set of key levers which are controlled by producers and/or distributors in order to create a specific multi-sensory atmosphere around a product or service either focusing on sale outlet environment and communication or on its own characteristics (Filser 2003).

Nowadays organic food consumers seem to pay more attention to “hedonistic” motives for purchasing of organic food, such as health, taste and wellness, rather than to “altruistic”

purchasing motives, such as environmental protection and animal welfare; this confirms the role played by sensory attributes in orienting food choices (Shepherd et al. 2005). Furthermore, some scientists pointed out that sensory attributes are important elements that should be taken into account in marketing strategies by organic food operators than even before (Brennan and Kuri 2002; Padel and Foster 2005).

Therefore organic practitioners are starting to take into account sensory properties, such as taste, smell, appearance, touch, mouthfeel and odour, as important elements to be considered in the food product development and marketing communication strategies in order to quickly respond to the new consumers needs and to shifted expectations. Since sensory properties are a relatively new issue in the organic food market, a preliminary exploratory investigation on organic operators experiences and expectations about consumers relevant sensory-information is necessary in order to better focus further investigations on consumer preferences. It will provide useful insights to design more extensive consumer surveys able to segment consumers and helping food producers to improve their marketing strategies. To the best knowledge of the authors, no previous studies are available in the literature, which investigate experiences and expectations of organic food operators about consumers relevant sensory-information.

This paper investigates the needs of some Italian supply chain actors for consumer-relevant information and their experiences concerning consumer preferences with regards to the sensory quality of organic food products using in-depth qualitative interviews.

The paper is organised as follows. Section two provides a short literature review about the recent evolution of organic food markets, putting a particular emphasis on the role played by sensory attributes in consumer choice. Section three describes the qualitative method used to collect and analyze information. Section four presents the findings of this research. Finally, section five summarizes the main findings and indicates the need of more extensive investigations.

## 2 Background

Drawing from a review made by Spiller and Obermowe (2009) we found that the organic food market was characterized by an uninterrupted growth and challenges of market structures during the past decade (Hamm and Gronefeld 2004; Sahota 2009). Padel et al. (2009) gave a comprehensive overview about an extensive growth in the European organic market reporting that the total value of the organic market is estimated at approximately 16.2 billion Euros in 2007, an increase of nearly two billion Euros compared with 2006. Moreover, the organic food market in Europe has grown on average about 10% per year with an average per-capita spending of 27 Euros across all European countries.

The Italian turnover of organic products amounted to 1,970 million Euros in 2008 (Stolz et al. 2010). Despite of the world economic crisis, Italian consumers are increasing their consumption of organic food. The growth rate of the Italian organic market slowed down to 5.4% in 2008, but it grew up to 6.9% in 2009 (Ismea 2010). Organic food represents about 3% of the overall Italian food consumption. Although the European markets is moving from 'exclusive' to 'mass' market where large retailers are gaining market share (Hughner et al. 2007), in 2005 the share of organic food sales in large retail Italian chains was only 39% that is much lower than in most European countries. Therefore, in Italy organic food is still mainly sold by traditional grocery stores and by specialized retailers (e.g., the organic retail chain "NaturaSi"). However, the share of organic products sales at large retailers has increased in the last few years (Schaak and Willer 2010). The retail chain "Esselunga" is presently the Italian retailer with the highest share on the Italian organic food market (Santucci 2009).

In this framework, profiles of organic consumers are evolving together with their buying motives, which are turning from traditional motivations, such as environmental protection and animal welfare, to health, taste and wellness motives (Spiller and Obermowe 2009). At this regard, literature review is abundant of studies which investigate the role played by sensory features, such as for instance taste or appearance, as drivers of organic consumer purchasing. In a framework which involves industrialization and standardization of food productions according to quality and safety standards, the relevance of sensory aspects aimed at highlighting the differences of special food products (like traditional and organic products) is becoming fundamental, due to the perception of such aspects by the consumers (Cayot 2007). Many studies revealed that taste and appearance are among the most important criteria in organic food purchase (Aertsens et al. 2009; Castellini et al. 2008; Kuhar and Juvančič 2010; Magnusson et al. 2001; Roddy et al. 1994) while others studies show that sensory attribute represents an important attributes for specific consumers segments, who approach pragmatically the purchase of organic food products (Pellegrini and Farinello 2009; Zhao et al. 2007) and tend to evaluate them according to the same parameters applied to conventional products (Berardini et al. 2006). In a study conducted by McEachern and McClean (2002) in the organic consumers of dairy products in Scotland, reveals that taste is the first purchasing motivation for consumers aged between 18 – 25 years and 31 – 40 years. Thus, an increasing share of consumers are willing to pay higher prices for organic products solely if they feature aspects beyond the fact of being organically produced, such as a unique taste or smell (Lüth et al. 2005).

### **3 Objectives**

The main aim of this research is to investigate in-depth the needs of supply chain actors for consumer-relevant information and their experiences concerning consumer preferences with regards to the sensory quality of organic food products. Since qualitative findings usually cannot be generalized, the paper has the objective to provide some useful elements to be included in further quantitative consumer surveys. In parallel, the paper provides some key elements that could serve as a basis for more extensive surveys in order to draw the Italian state-of-art of the role played by sensory aspects in the business of organic operators.

In order to reach the aim of the paper the following subjects will be investigated:

- Business philosophy or market approach of the organic producers;
- Previous experiences concerning sensory aspects of food products;
- Sensory strengths and weakness of their organic products;
- Relevance of sensory issues into consumer behavior;
- Expectations about information that could be gained from a consumer survey focused on sensory aspects of organic food specialties and useful indications for the development of future marketing and communication strategies taking into account sensory issues.

### **4 Data and Methods**

The absence in literature review of research investigating experiences, perceptions and expectations of Italian organic food industry practitioners concerning sensory issues, with specific reference to consumer-relevant information and market strategies determined the choice of an exploratory approach. In this context, in-depth interviewing has been selected as the most

appropriate qualitative analysis technique. We selected a non-probabilistic convenience sample of organic producers. Contacts were chosen on the basis of a list of organic producers provided by Bioagricert<sup>1</sup>. We selected our “key informants” among organic food producers of yogurt, biscuits, tomato sauce, sausages, sunflower oil and apples<sup>2</sup>. Particular attention was paid to those individuals who played a relevant role in organization, knowledge management and promotion of organic products. Mainly general managers and people working in marketing areas were recruited, as well as some production managers. The operators were recruited by telephone. In total, 10 interviews were conducted (4 in person at the operators’ workplace and 6 over the phone) during Summer 2009 by an experienced interviewer. The interviews were supported by a semi-structured questionnaire<sup>3</sup> and by audio-recording, if authorized by interviewee. The semi-structured interview schedule was composed of several themes required for the achievement of the final objective<sup>4</sup> of the investigation. The interviews lasted 35-80 minutes.

Notes have been taken by the interviewer during each interview in order to avoid the loss of useful information derived from non-verbal aspects, while debriefings were written immediately after each interview, highlighting those elements deemed as most important. After then, all interviews were verbatim transcribed and then analyzed through the application of qualitative analysis techniques described as follows:

- *Subjective analysis of the content of the interviews (heuristic content analysis).* The main objective of this analysis is to show the most interesting themes arising from each interview in order to gain an extensive overview of interviewees’ attitudes towards the themes under investigation. First of all, the analysis required reading interview summaries and debriefing considering the aspects of direct conversations, aspects of not oral communication and characteristics of the operators. The analysis served as an initial screening to support the subsequent content analysis.
- *Statistical analysis of the content of the interviews (quantitative content analysis).* We performed quantitative analysis of interview contents with the aim to measure the occurrence of certain elements in the material collected (Molteni and Troilo 2007). We basically counted the frequency of occurrence of the elements investigated in the text analyzed, which in turn allows to elicit useful information for research purposes (Bolasco et al. 2004). Quantitative approach is more structured, deductive and oriented towards the reduction of information into a more limited number of representative concepts than qualitative approach. It allows to manage qualitative data using statistical analysis, although we must stress that information obtained still has a qualitative value. However, doing this analysis by reading the text usually takes a lot of time and efforts. Those limitations nowadays are overcome, thanks to the availability of advanced technology, such software applications performing Text Analysis (TA) that allow simplifying analysis, save time and carry out infinite comparisons (Bolasco et al. 2004).

A database was created from the verbatim transcripts of 10 interviews. Subsequently, the software “Text Smart” of the statistical package SPSS was used for the quantitative evaluation of content. To do that we carried out the following phases:

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<sup>1</sup> Bioagricert srl is an Italian certification body for organic productions and other non food sectors.

<sup>2</sup> The choice of these products reflects the products investigated in ECROPOLIS project.

<sup>3</sup> The semi-structured questionnaire adopted was designed in collaboration with ECROPOLIS partners, and has been used as common track to perform the tasks of the Work Package 4.1 of the above mentioned project.

<sup>4</sup> A copy of the questionnaire is available under request.

- identification of sub-texts for consideration during the analysis and conceptual clarification of the meaning of words or sentences;
- creation of an archive containing words devoid of meaning for the objectives of the investigation ('empty words')<sup>5</sup>;
- creation of an archive 'purged' of 'empty words';
- semantic categorization of sub-texts under consideration;
- evaluation of the importance of semantic categories (through frequency indexes).

Sub-texts were identified to highlight those segments of conversation with high informative value which express concepts related to the themes of the discussion. Then, these segments were brought back to specific semantic categories which could represent their meanings.

According to Bolasco et al. (2004) the importance of semantic categories identified in a corpus text may not be measured exclusively by counting the frequency with which the headwords representing them are mentioned during the discussion. For instance, there are some words called *hapax*, which although mentioned once it would be very important (Bolasco et al. 2004). In order to standardize the value of each semantic category with the actual relevance assumed during the discussion, the *Term Frequency-Inverse Document Frequency*<sup>6</sup> (TFIDF) index was calculated. The index TFIDF is composed from two sub-indexes: TF and IDF. The Term Frequency (TF) indicates the number of occurrences of each semantic category in textual database. The value TF associated to each semantic category is then multiplied to a value (IDF), which indicates how much the category is common in the discussion.

The equation to calculate TFIDF is:

$$\text{TFIDF} = \text{TF} \times \text{IDF} = F_{\text{TD}} \times \text{LOG}(N/F_{\text{T}})$$

where:

$F_{\text{td}}$  = number of occurrences of terms referring of each semantic category in sub-texts.

$N$  = overall number of sub-texts related to the theme under discussion .

$F_{\text{t}}$  = number of sub-texts in which is cited a term representative of a semantic category.

The analysis lead to the creation of tables listing the frequency of semantic categories within each discussion analyzed with the relative TFIDF values allowing to define the relevance of some semantic categories into the specific theme under investigation.

- *Conceptual positioning maps (multidimensional scaling).*

This technique allows to define and highlight relationships between different semantic categories on the basis of their positioning on a map. The objective is to draw the cognitive map of the semantic categories mentioned with reference to the subject under discussion, and then to interpret its dimensions, which represent the structure of its logic. The basic objective behind the mapping of the semantic categories previously identified through content analysis is to explicit

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<sup>5</sup> 'Empty words' (e.g., and, of, from, the) are lexical components which are instrumental to sentence construction but devoid of autonomous meaning (Bolasco et al., 2004).

<sup>6</sup> In Text Mining procedures, this represents an indicator used to evaluate the importance of headwords appearing in the text (Salton et al., 1988).

information concerning the relationships between the semantic categories. The maps have been constructed using the Multidimensional Scaling (MDS) technique. In particular, the MDS procedure consists in creating perceptive maps of the phenomenon under investigation through information on the proximity between different objects. In particular, the proximity (or similarity) is the level of similarity (or closeness) or dissimilarity (or distance) existing between each couple of objects to be analyzed.

Frequencies of occurrence of the semantic categories into the interviewees comments (sub-texts) were derived from the content analysis; the mentioned frequencies were collected and used to build 5 co-occurrence matrices (one for each discussion theme), as a basis to calculate the proximity between all the semantic categories emerged during the discussion. Each co-occurrence matrix is a square matrix whose dimensions are represented on both sides by the semantic categories, and the values into the matrix correspond to the frequency of co-occurrence of each couple of semantic categories into the same sub-text. All the semantic categories have been taken into consideration to build the co-occurrence matrices, even if some of them have never been cited together with other semantic categories in the same comment. The frequency of co-occurrence represents, to some extent, the closeness of the semantic categories, but it cannot be directly considered as a measure of proximity. In order to obtain measures of proximities from the available data, the PROXSCAL algorithm adopted in the MDS application contained in the statistical package SPSS was employed (Ennas 2010; Leydesdorff and Vaughan 2006). This technique allows us to identify the optimal configuration of available data via a limited number of “factor axes”, which constitute the “dimensions” of the perceptive map, so as to reveal the model at the basis of the data employed (Fabbris, 1997; Hair et al., 2003). In this way one obtains a visual instrument for interpreting the phenomenon under analysis both in an empirical sense and in more rigorous senses, treating the results with other methods of multivariate data analysis. As a result, 2-dimensions maps have been drawn, highlighting the conceptual positioning of the semantic categories for each subject considered. The most interesting results are discussed in the following section.

## 5 Results

### 5.1 Sample description

Before starting the data analysis, we provide a short overview about the characteristics of the sample of supply chain actors interviewed.

They were all practitioners working at organic primary producers and/or processors producing the most typical organic products located in North-Centre of Italy. In particular, two operators were specialized in dairy products, two in sausages, two in apple growing, one in production of tomato sauce and biscuits, one in biscuits, one in sunflower oil and finally one was involved in the production of apple, sausage and tomato sauce.

Six interviewees were managers working in marketing and trade areas of medium-large companies, while three interviewees were boss of the smallest and less structured companies. Finally, one interviewee was an administrative manager. Five of the companies do their business only in the organic market, two companies do business mainly in the organic market and finally three companies do their business mainly in conventional products.

With regard to the experiences in the organic sector, table 1 shows that the interviewees as well as large majority of producers have a significant experience in the organic sector.

**Table 1.** Years of experience in organic sector

| YEARS OF EXPERIENCE | producers | interviewees |
|---------------------|-----------|--------------|
| Less than 5         | 1         | 1            |
| 5 – 9               | 1         | 1            |
| 10 – 14             | 2         | 6            |
| 15 – 19             | 1         | 1            |
| 20 – 25             | 4         | 1            |
| More than 25        | 1         | 0            |

## 5.2 Main findings

Results are described on the basis of the five “objectives/themes” defined in the research objectives such as philosophy or market approach, previous sensory-related experience, sensory strengths and weaknesses, consumer attitudes towards sensory aspects and strategies and development. All the factors have been analyzed using both heuristic and quantitative content analysis. The semantic categories elicited from the discussion are listed in Table 2.

### Theme 1: Philosophy or market approach

Heuristic content analysis indicated that various business philosophies appear to drive companies and organic businesses may be categorized in different market approaches. In the subsequent quantitative content analysis the relevance of these philosophies is measured by the frequencies and TFIDF index (Table 3), which effectively illustrates the weight of the semantic category emerged from the interviews. First, it appears that organic producers basically focus their market approach on quality characteristics (SC01), such as healthiness, taste, wellness and authenticity, of the products which also include the production of “really organic” natural certified products (SC04).



**Table 2.** Semantic categories – complete list

| OBJECTIVE/THEME                                   | SEMANTIC CATEGORY   | ID   |
|---|---|------|
| 1. PHILOSOPHY OR MARKET APPROACH                  | High quality products   | SC01 |
|   | Products standardization / comparison with benchmarks and market leaders                      | SC02 |
|   | Prices policy   | SC03 |
|   | Organic warranty (natural, certified)   | SC04 |
|   | Product range/availability  | 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 |
|   | Non trained assessor tests  | SC11 |
|   | Trained assessor tests  | 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 |
|   | Influences of production methods and environment  | SC18 |
|   | Influence of raw materials  | SC19 |
| 4. CONSUMERS ATTITUDES TO SENSORY ASPECTS         | Similarity with conventional counterparts   | SC20 |
|   | Evolution towards higher importance of SA   | SC21 |
|   | SA as relevant purchase motivation  | SC22 |
|   | Role of education and training  | SC23 |
|   | WTP -   | SC24 |
|   | WTP +   | SC25 |
|   | SA as niche/high quality products detectors   | SC26 |
| 5. STRATEGIES AND DEVELOPMENT                     | Getting information on SA weaknesses, improving sensory features and product development (PD) | SC27 |
|   | Explore consumer behaviour and expectations   | SC28 |
|   | Improving marketing communications  | SC29 |
|   | High costs for SMEs   | SC20 |
|   | Benchmarks  | SC31 |

Second, price policies (SC03) seem to act as important market philosophy. By heuristic analysis emerged that there are two targets when talking about price policies in organic field. Large organizations, such as consortia and cooperatives, apply prices policies (cost-based policies) with the aim to safeguard the income of their members (e.g. small local farmers). The second type of price policy mentioned (penetration policy) refers to the need to keep prices at a reasonably low level for consumer in order to increase market penetration.

Many interviewees mentioned that reputation, strictly connected with the concept of the company image and strongly supported, when possible, by brand policies (SC08), is fundamental in approaching market and consumers.

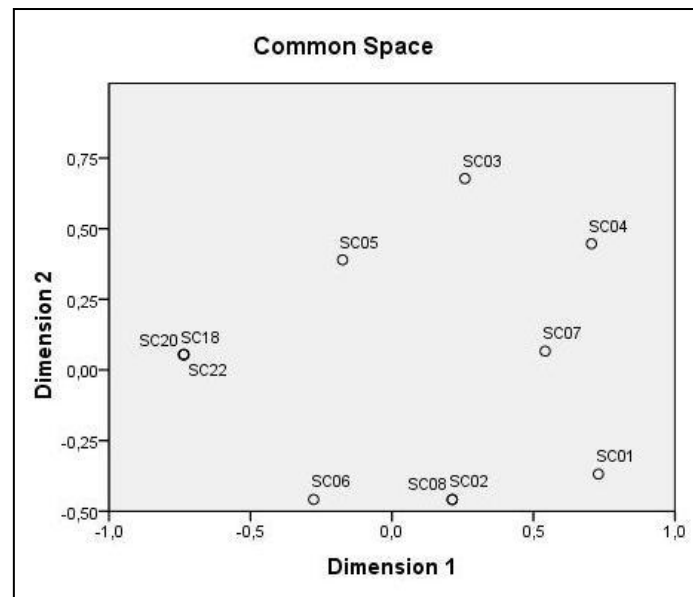
**Table 3.** Semantic Categorization: TFIDF Index (N=22; Theme 1: Philosophy or market approach)

| SEMANTIC CATEGORIES   | TF (#) | Ft (#) | TFIDF |
|---|--------|--------|-------|
| SC01 - High quality products  | 7      | 5      | 4,50  |
| SC04 - Organic warranty (natural, certified)                                    | 6      | 5      | 3,86  |
| SC03 - Prices policy  | 4      | 3      | 3,46  |
| SC08 - Image/Reputation/Brand   | 5      | 5      | 3,22  |
| SC02 - Products standardization / comparison with benchmarks and market leaders | 3      | 2      | 3,12  |
| SC07 - Supply chain integration   | 2      | 2      | 2,08  |
| SC05 - Product range/availability   | 1      | 1      | 1,34  |
| SC06 - Support to local suppliers   | 1      | 1      | 1,34  |
| SC18 - Influence of production methods and environment                          | 1      | 1      | 1,34  |
| SC20 - Similarity with conventional counterparts – market leaders               | 1      | 1      | 1,34  |
| SC22 - SA as relevant purchase motivation                                       | 1      | 1      | 1,34  |
| Specific occurrences  | 32     |        |       |

N = total number of responses (sub-texts) related to the theme under discussion; TF = number of times that a term which represents the specific semantic category is mentioned sub-texts related to the theme under discussion; Ft = number of responses (sub-texts) in which a term representing a semantic category is mentioned.

Considering the results emerging from MDS in the first subject of discussion (Figure 1), semantic categories are quite spread into the common space. Anyway, taking into consideration Dimension 1, on the right side there are categories which are referred specifically to the organic supply chain, in terms of management (SC07 – Supply chain integration), protection and value-enhancement through distinctive peculiarities (SC04 – Organic warranty; SC01 – High quality products). On the left, the focus seems to drive from “internal” to “external” perspective, taking into consideration external market factors represented by consumers attitudes which are becoming pragmatically careful towards organic food products (SC22 – Sensory aspects as relevant purchase motivation), competitors (SC20 – Similarity with conventional counterparts/market leaders), and other external influences (SC18). Dimension 1 seems to contain all the elements of a SWOT analysis for the organic food supply chain, identifying internal strengths and weaknesses and external threats and opportunities, on which market approaches can be based.

Analysing the Y-axis (Dimension 2), we can find semantic categories connected with “value” in the organic supply chain. At the top, this value is explicated by the price policy, aiming at supporting producers and releasing reasonably priced organic products. Moving to the bottom of the axis, the monetary dimension of value is substituted by more “immaterial” meanings of the value itself: relevance of reputation and of positioning in comparison with other competitors (SC08, SC02); higher value given by quality (SC01); valorisation of the “local” economy (SC06).



**Figure 1.** Positioning of the semantic categories according to the first subject of discussion (Theme 1: Philosophy or market approach)

### **Theme 2: Previous experiences in sensory-related issues**

Heuristic content analysis indicated that organic producers mentioned a long list of different elements, represented by semantic categories (Table 4), which describe the previous sensory experiences. Quantitative content analysis confirmed the findings emerged by heuristic analysis providing more details.

First, it appears that organic producers conduct empirical sensory test (SC10) which basically are performed in a non-systematic and non-standardized procedures within the firm (SC14) and are carried out by non trained assessors (SC11) such as, for instance, employees. These findings basically regard all producers, with the exception of apple producers. For example a producer of tomato sauce said:

*"... in the stage of product design, we perform different tests more or less organized, which are blind tests, carried out by our employee who tastes the products comparing it with the products of our competitors".*

Second, it seems that sensory tests are carried out with the objective of comparing sensory features of own organic products with products of competitors (SC31) and also with the aim to get information on sensory aspects weaknesses, improving sensory features and PD (SC27).

Third, it appears that the characteristics of raw materials (SC19), Influence of production methods and environment (SC18), such as the level of processing, seasonal environmental trend, post-harvest treatments, etc. can influence the sensory features of organic products and the overall performance of the products when tested or compared with competitors (conventional products or other market leaders).

**Table 4.** Semantic Categorization: TFIDF Index (N=43; Theme 2: Previous experiences in sensory-related issues)

| SEMANTIC CATEGORIES  | TF (#) | Ft (#) | TFIDF |
|--|--------|--------|-------|
| SC14 - Internal tests  | 11     | 11     | 6,51  |
| SC10 - Empirical tests   | 7      | 7      | 5,52  |
| SC11 - Non trained assessor tests  | 7      | 7      | 5,52  |
| SC31 – Benchmarks  | 5      | 5      | 4,67  |
| SC18 - Influences of production methods and environment                        | 4      | 3      | 4,63  |
| SC27 - Getting information on SA 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 - Trained assessor tests  | 1      | 1      | 1,63  |
| SC13 - Outsourced tests  | 1      | 1      | 1,63  |
| SC25 - WTP +   | 1      | 1      | 1,63  |

N = total number of responses (sub-texts) related to the theme under discussion; TF = number of times that a term which represents the specific semantic category is mentioned sub-texts related to the theme under discussion; Ft = number of responses (sub-texts) in which a term representing a semantic category is mentioned.

### Theme 3: Sensory strengths and weaknesses

Quantitative content analysis confirms the findings of heuristic content analysis showing that the sensory strengths and weaknesses of organic food closely depend on “endogenous” factors such as, the features of raw materials (SC19) and “exogenous” factors such as the influence of production methods and environment (SC18) (Table 5). At this regard a marketing manager of organic apple producer pointed out the influence of organic production method on sensory features:

*“...since the organic production method does not permit chemical fertilizers, the organic apple will contain less salts and as a consequence less content of water in comparison to conventional apple. This will be reflected in longer shelf life, higher content of fibers and vitamins ... which in turn will affect sensory features”.*

A second aspect pointed that organic food is characterized by authenticity, naturalness and higher intensity of sensory features with respect to conventional counterparts (SC16). However, on the other hand the main weakness of organic food is the higher variation of sensory characteristics (SC17) during shelf life, which may create problem of consumer acceptability in the long run. This holds especially when we refer to those consumers driven by pragmatic motivations in their purchase, which tend to compare organic products performance with those of the conventional equivalents (SC20).

**Table 5.** Semantic Categorization: TFIDF Index (N=54; Theme 3: Sensory strengths and weaknesses)

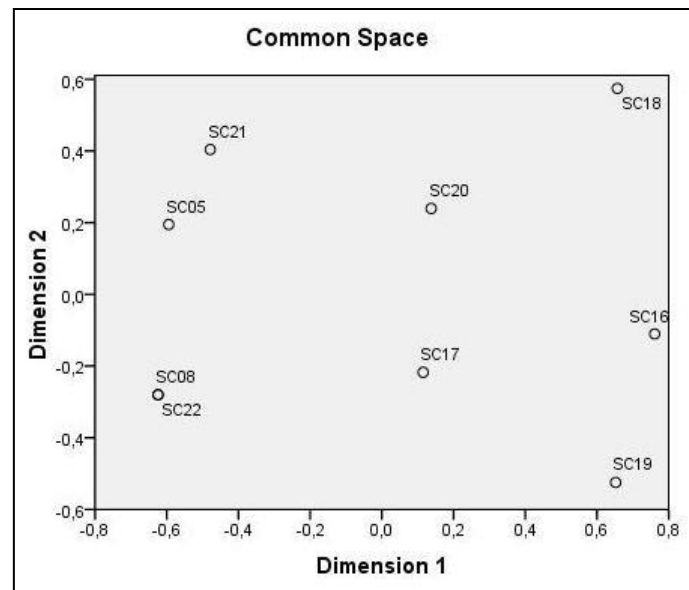
| SEMANTIC CATEGORIES  | TF (#) | Ft (#) | TFIDF |
|--|--------|--------|-------|
| SC19 - Influence of raw materials                                  | 15     | 9      | 11,67 |
| SC16 - Authenticity, naturalness and intensity of sensory features | 19     | 17     | 9,54  |
| SC18 - Influences of production methods and environment            | 13     | 11     | 8,98  |
| SC22 - Sensory aspects 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 - Evolution towards higher importance of sensory aspects      | 1      | 1      | 1,73  |
| Specific occurrences   | 59     |        |       |

N = total number of responses (sub-texts) related to the theme under discussion; TF = number of times that a term which represents the specific semantic category is mentioned sub-texts related to the theme under discussion; Ft = number of responses (sub-texts) in which a term representing a semantic category is mentioned.

MDS allows us to position the semantic categories on a bi-dimensional map whose interpretation is quite challenging (Figure 2).

Starting from the horizontal axis (Dimension 1), on the right we find semantic categories specifically connected with the subject of discussion (factors affecting sensory aspects), and on the left there are semantic categories concerned with consumer's moments of purchase (SC05, SC08) and preferences (SC21, SC22). Dimension 1 seems to collect, from the right to the left, all the elements which define and allow to assess the "successful performance" of organic food considering sensory aspects. On the right side of the axis, objective elements, such as origin of raw materials and production and processing techniques, which are supposed to have a positive influence and to turn out in authenticity, uniqueness and naturalness, are positioned; on the left there are "perceptual elements" (consumers' appreciation of sensory aspects, image and reputation) that could add value to organic products because of their distinctive sensory performance. We notice that the "credence" attributes concerning the organic production are on the right and "experience" attributes and "search" quality cues regarding consumers' perception are on the left of Dimension 1 that therefore can be labelled "verifiable performance".

Due to the positioning of categories in the common space, also Dimension 2 is not easy to analyse and label. Considering the semantic category on the bottom (SC19 – Influence of raw materials and ingredients) and those at the opposite side (SC18, SC20), it is maybe possible to argue that the vertical axis represents the "standardization vs. variability" dimension. As outlined by the semantic categorization, organic production could be affected by some specific peculiarities of raw materials and of the organic production method itself, which could make organic products unique but at the same time could lead to variation in sensory features. This variability could be not appreciated by consumers, who are used to standardized performance of food products even when talking about sensory aspects.



**Figure 2.** Positioning of the semantic categories according to the third subject of discussion (Theme 3: Sensory strengths and weaknesses)

#### **Theme 4: Consumer attitudes towards sensory aspects**

Interviewees largely agreed that, while early organic consumers were motivated by ideological motivations such as health preservation, environmental protection, animal welfare, etc. into purchase organic food, consumers who started recently to purchase organic which are called “Pragmatic consumers” frequently compare organic products with conventional counterpart in terms of sensory features. This finding may suggest the increasing of the importance of sensory aspects for organic consumers which is also confirmed by high frequencies and TFIDF values of SC21 and SC22 (Table 6). The evolution of consumer towards an increasing importance of sensory features (SC21) in the consumers choice is closely linked to the increasing role played from education and training (SC23) in the last decades, which seem to be important factors affecting the level of “acceptance” of some specific sensory peculiarities of organic products.

With regard to the relevant sensory aspects as purchase motivation (SC22) the heuristic analysis indicates that while appearance is the most important sensory characteristic taken into account by consumers for the first purchase, taste seems to drive the re-purchasing as for example mentioned by a marketing manager of company producers of organic sausages:

*“... with regard to the importance of sensory features, there are two different times. First, is when consumer approach with the first purchasing at supermarket; here the appearance is the most relevant sensory features driving the consumer choice. Second time, is when the consumer goes home and eat organic food. If consumer like the taste, he will re-purchasing that product, otherwise no”.*

A second important element is represented by the fact that organic consumers compare sensory features of organic food with conventional counterparts or market leaders (SC20).

Third, with regard to the willingness to pay of consumers due to the different sensory characteristics of organic food, interviewees were in trouble expressing an opinion due to the difficulty to consider sensory features separately from all other features that characterize organic food.

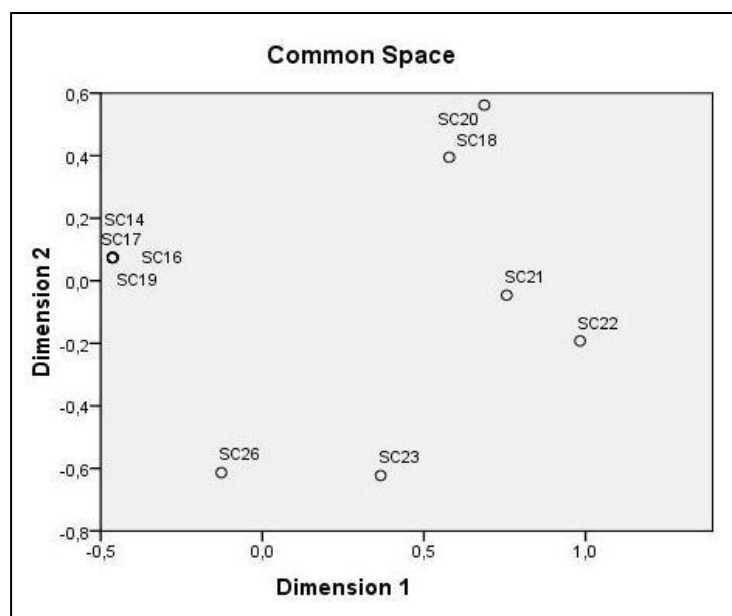
**Table 6.** Semantic Categorization: TFIDF Index (N=91; Theme 4: Consumer attitudes towards sensory aspects)

| <b>SEMANTIC CATEGORIES</b>   | <b>TF (#)</b> | <b>Ft (#)</b> | <b>TFIDF</b> |
|--|---------------|---------------|--------------|
| SC22 - Sensory aspects as relevant purchase motivation             | 23            | 17            | 16,76        |
| SC21 - Evolution towards higher importance of sensory aspects      | 13            | 11            | 11,93        |
| SC23 - Role of education and training                              | 8             | 6             | 9,45         |
| SC20 - Similarity with conventional counterparts – market leaders  | 8             | 7             | 8,91         |
| SC25 - WTP -   | 4             | 4             | 5,43         |
| SC18 - Influences of production methods and environment            | 3             | 3             | 4,45         |
| SC24 - WTP+  | 3             | 3             | 4,45         |
| SC26 - Sensory aspects 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            |               |              |

N = total number of responses (sub-texts) related to the theme under discussion; TF = number of times that a term which represents the specific semantic category is mentioned sub-texts related to the theme under discussion; Ft = number of responses (sub-texts) in which a term representing a semantic category is mentioned.

Taking into consideration the map obtained through MDS (Figure 3) for the fourth theme under of discussion and analyzing the positioning of the semantic categories along the vertical axis, we can see that on the top of the axis we can find categories connected with the possibility to standardize food products performance (SC20, SC18), while at the bottom there are categories (SC23, SC26) which deal with the ability to perceive the uniqueness and the higher value given by sensory peculiarities. Dimension 2 could then be labeled as the “sensory awareness building process” dimension, in which education and training play a fundamental role in guiding consumer from “benchmark-oriented” sensory perceptions to a wider and more aware attitude towards sensory peculiarities.

Dimension 1 (X-axis) can be maybe interpreted as the “influences on consumer’s purchase decision”, in which sensory aspects play a fundamental role for the final decision (SC21, SC22), but sensory peculiarities of organic food (SC16, SC19), even acting in some cases as high quality products detectors (SC26), are still compared with sensory features of conventional counterparts or market leaders (SC20), which are less variable and to which the consumers perception (especially, in the case of occasionally consumers of organic products) got used. The positioning of SC18 on the Y-axis, near to SC20 may be explained if we specifically refer in this case to organic processing methods, which generally lead to more “standardized” sensory performance.



**Figure 3.** Positioning of the semantic categories according to the fourth subject of discussion (Theme 4: Consumers attitudes towards sensory aspects)

### Theme 5: Strategies and development

The large majority of interviewees showed interest into getting information on sensory weaknesses, improving sensory features and PD (SC27) as well as to explore consumer behaviour and expectations (SC28) (Table 7). In particular, producers will expect to collect information about sensory weaknesses of their product in order to improve sensory quality of their food in order to do not limit the purchasing of consumers, improving the process of food product development.

**Table 7 – Semantic Categorization: TFIDF Index (N=22; Theme 5: Strategies and development)**

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

N = total number of responses (sub-texts) related to the theme under discussion; TF = number of times that a term which represents the specific semantic category is mentioned sub-texts related to the theme under discussion; Ft = number of responses (sub-texts) in which a term representing a semantic category is mentioned.

With the exception of apple producers, the medium-larger operators are going to perform sensory analysis in a more scientific way than even before, while small producers, even if showing interest, they said that they cannot make sensory analysis because of the high costs of analysis. Only one interviewee showed interest into improving marketing communications that include sensory aspects. This results is perhaps motivated by the fact the almost all of them are not dealing directly with consumers, and their marketing activities have to be connected with those of the retailers. Anyway, it has to be remarked that most of the interviewees showed to pay attention to



their competitors and to the market environment, and mentioned also the need to control competitors' products positioning in order to plan their future strategies (SC31).

## 6 Final remarks

The adoption of quantitative content analysis and conceptual maps allowed to better focus some elements that came out from the first heuristic approach of the research. Organic food chain operators have shown to basically orient their market approach (Theme 1) on quality characteristics of organic food products, on the assurance of organic principles and on price policies, in order to provide value to both producers and consumers. In a market perspective, they stated to pay attention also to brand policies and to reputation, which are deeply connected with the attention to other competitors and market leaders. Conceptual maps helped in eliciting the dimensions underlying the market approaches. On a strategic perspective, the general overview of market approaches draws up the structure of a SWOT analysis for the organic food chain, where internal features of the supply chain (chain integration and management, value-enhancement of distinctive quality) must be combined with external factors (consumers needs, competitors) in order to succeed. Market philosophies concerning the approach to the organic food chain can also be characterised by the different "value" they aim at creating (monetary vs. non monetary).

Considering sensory previous experiences (Theme 2), operators stated that sensory tests are mainly carried out empirically, they are not systematic and often performed by non trained assessors, even though they are completely aware of the importance of information on competitors products performance, on comparison of results and on sensory weaknesses.

Concerning strengths and weaknesses of sensory aspects (Theme 3), organic operators clearly remarked that they closely depend on endogenous and exogenous factors, which contemporarily are the reasons for the authenticity and differentiation of sensory features but also the causes of the higher variation of sensory characteristics, which can affect consumer acceptability. Positioning of semantic categories on the conceptual maps in this case highlighted the presence of two underlying dimensions. The first can be indicated as the positive Value of sensory aspects, which can be expressed both by elements that are difficult to test directly (production and processing methods, raw materials) and by directly verifiable factors and quality cues (such as image and reputation, and consumers perceptions). The second dimension can be labeled as "standardization vs. variability", affect consumers appreciation.

Considering consumers' attitudes towards sensory aspects (Theme 4), content analysis showed the high importance of sensory aspects for organic consumers, especially considering their pragmatic approach to organic food; sensory features seem to represent an important driver both in case of first purchase (appearance) and in re-purchasing (taste). It emerged that this approach is deeply connected with sensory education and training, which play a fundamental role, affecting the level of "acceptance" of some specific sensory peculiarities of organic products. Positioning the semantic categories on the conceptual maps allowed the researchers to identify and label the two dimensions underlying the common space. Dimension 2 represents the positive trend of the "sensory awareness building process", in which the higher sensitiveness of consumers towards sensory aspects is guided by education and training from "benchmark-oriented" sensory perceptions to a wider and more aware attitude towards sensory peculiarities. Dimension 1 describes in some way consumers' purchase decision process in which sensory aspects play a fundamental role for the final decision, but sensory peculiarities of organic food, even acting in some cases as high quality products detectors, are still compared with sensory features of conventional counterparts.

Concerning Strategies and development (Theme 5), interviewees showed interest into getting more information on sensory weaknesses, in order to improve sensory features and to better define product development processes or new product development strategies. In many cases, they expressed the need and the intention to plan scientific sensory tests with trained personnel, while only one operator declared to be willing to improve marketing communications including sensory aspects. This finding is maybe motivated by the fact that most of the interviewees don't deal directly with consumers and their marketing activities have to be connected with those of the retailers.

On a market perspective, all the operators showed interest in directly exploring consumer behaviour and expectations, and mentioned the need to control competitors' products positioning in order to plan their future strategies. At this regard, further researches which explore experiences and expectations of organic consumers as well as sensory weaknesses of organic products, are recommended in order to provide useful insights to organic practitioners to improve sensory features of organic products as well as to better target marketing communications.

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