Consumer attitudes to food quality products

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edited by:
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Emphasis on Southern Europe

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Preface

This publication focuses on food quality issues. Attention is given to producers' and processors' aspects and also to consumer behavioural aspects. This topic is not regularly on the agenda in animal science conferences. However, at the EAAP (European Association for Animal Production) conference in Crete, Greece in 2010, a workshop was devoted to this topic. The choice of this topic illustrates the growing interest for added value products, such as special local, organic and health claimed products. The emphasis in this publication is on countries in Southern Europe. The workshop was organised in cooperation with the Mediterranean Working Group of EAAP and with input from the EU-FP7 project Focus Balkans, studying food product and consumer sciences in the Western Balkan countries.

Two well known strategies in animal production are specialisation and diversification of production. Quality food products are usually linked to the diversification strategy of production, combining agricultural production with processing and/or selling of the products. Agro-tourism is also a form of diversification. What is typical of all these activities is a link to the consumer of the products. This requires special business qualities. For instance, personal characteristics come into the picture. We enter in fact the field of food consumer sciences. This is a relatively new and complex field of study. Food consumer science could easily be considered as a synonym for, or a hybrid of, two distinct sciences. On one hand, there is the part that might be regarded as 'hardware', i.e. the science of food, while on the other there is the part that might be designated as 'software', namely the science relating to consumers. Food consumer science is intended to overcome such differences as it pursues a holistic approach towards hardware (referring in particular to natural sciences such as chemistry, biochemistry, microbiology, process techniques), and software (i.e. social and humanistic sciences, mostly sociology and psychology). The latter should tell us why, when and how the consumer will purchase and consume food, while the first should examine how food is produced and processed. In animal sciences nearly all attention is given to the hardware component, while the software component is often neglected. However, for successful business in quality food products the software component is essential. This publication devotes attention to the consumer aspect as well as to the production and processing aspects.

The publication is split into overview articles, a series of country reports and articles devoted to interesting studies related to the topic in a number of European countries. I wish to thank the co-editors Marija Klopčič and Jean-Francois Hocquette, and all of the authors very much for their input. All contributed papers have been reviewed carefully by at least two reviewers. Especially the editors examined all articles several times and corresponded extensively with the authors. Also, an English language check was undertaken by Gerry Keane from Ireland, who also added remarks.

The publication gives insight in an area of knowledge still very much in development and not really well-known in the animal production environment. We expect it will enhance understanding of the complex relations in the route from product to consumer.

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Part 1.
Overview papers

Food quality policies and consumer interests in the EU

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Abstract

The EU agricultural product quality policy concentrates on product qualities such as geographical origin, a product's traditional character or organic production method. Alongside numerous voluntary certification schemes, these schemes allow for European consumers to obtain quality-guaranteed foodstuffs, and for European producers to differentiate their products in an increasingly competitive and globalized food market. This chapter discusses the challenge of informing consumers about food quality and it reviews consumer interest in relation to origin-labelled, traditional and organic foods. While these qualities generally appeal to European food consumers, several real or perceived barriers to increased purchase persist, such as price, availability or uncertainty with respect to the true production method or product character.

Keywords: consumer; food; organic; origin; traditional

Food quality policies in the EU

'A constantly increasing number of consumers attach greater importance to the quality of foodstuffs in their diet than to quantity.' This statement as mentioned in the European Council Regulation EC 510/2006 (European Commission, 2006: L93/12) was one of the main justifications for introducing the European Union (EU) agricultural product quality guarantee schemes related to geographical indications and traditional specialities. The three schemes are commonly known as PDO (Protected Designation of Origin), PGI (Protected Geographical Indication) and TSG (Traditional Speciality Guaranteed), from which the PDO and PGI schemes are the most widely used with more than 500 registered products each by the end of 2011 (European Commission, 2012). Besides these quality schemes that focus on geographical origin and special product characteristics that provide products with a traditional character, and alongside numerous voluntary private certification schemes, the EU agriculture and food quality policy also concentrates to a large extent on organic agriculture to guarantee reliable quality food to European consumers.

The application and market presence of agriculture and food quality schemes is quite diverse across Europe. Whereas in some European regions the use of geographical indications to signal distinct product quality are dominant, other regions focus more on the development of collective quality marks which are also referred to as possible candidates for future formal PDO or PGI registration. Yet other regions focus more on private quality assurance schemes or organic food production. Becker (2009) indicated that EU Member States have gone different ways with their food quality policies, which reflects differences in historical evolution, in the development and organisation of food chains and industries, as well as differential consumer interests, attitudes and behaviours.

Several regional European clusters were identified based on the focus in their food quality-enhancing policies (Becker, 2009). A first cluster, including countries such as France, Italy, Spain and Portugal was classified as countries that are strongly PDO/PGI oriented. Several Eastern European and Western Balkan countries, such as Czech Republic, Slovakia, Hungary and Slovenia were classified as 'catching-up with respect to PDO/PGI'. Another cluster consisted of Germany, the United Kingdom, Ireland and Belgium, with a clear orientation towards food quality assurance schemes. Such schemes were often initially informed by food safety concerns during the last decade of the 20th century, but gradually developed into overall quality-oriented schemes. Other countries like the Netherlands and

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Luxemburg were classified as quality oriented but diversified in their food quality policies, while Austria and the Scandinavian countries were more organic-farming oriented.

Applications of agriculture and food quality schemes and related consumer interests have been empirically investigated and described for example in Barham and Sylvander (2011) with a main focus on West-European countries and some global perspectives, while the different chapters of the present book complement the picture with a focus on Southern Europe and Western Balkan countries in particular. The present chapter will discuss the challenge of informing consumers about food quality, and it will briefly introduce consumer interest in relation to each of the three cornerstones of the EU agriculture and food quality schemes, notably origin-labelled, traditional and organic foods.

Informing consumers about food quality

On-pack product labelling is the typical way of informing consumers about food quality at the place of purchase. Product labelling has gained considerable attention recently, both as a means to provide product-specific information to stakeholders involved in the food chain (e.g. retailers and resellers), and to reduce quality uncertainty faced by consumers in their food choice or decision-making process. Also from the regulatory point of view, issues relating to the labelling of food products have gained momentum recently. This has become very apparent with the cases of quality, country of origin (or provenance), geographic origin and traceability labelling, which have come to the fore in international law and trade debates (as well as disputes in some cases), specifically regarding registration and protection issues (Maher, 2001). Fresh food products have been particularly prone to origin and quality labelling as an alternative product differentiation strategy to branding (Carter *et al.,* 2006). Furthermore, governments have put labelling legislation high on the agenda in the past decade. In the EU, rules are put in place on the labelling, presentation and advertising of foodstuffs (most notably Council Directive 2000/13/EC and its amendments) to enable European consumers to get comprehensive and accurate information on the contents and the composition of food products, and therefore helping them to make an informed food choice. Within the EU General Food Law, traceability has occupied a very prominent position recently, most specifically with the establishment of Commission Regulation EC/178/2002 that defines the concept of traceability and contains its general provisions.

Indications on food labels, such as origin labels, geographical indications or other quality marks on food products may represent some value for consumers because they may be perceived as signalling a particular product specification (e.g. relating to authenticity and genuineness). Labels also signal a certain quality level, which does not necessarily need to be premium quality. For example, region and origin labels have been reported to be rather convenient marketing tools designed and used to signal and stress particular food product attributes, rather than objective signals of premium quality (Cannon, 2005). Also the intrinsic added value of traceability for consumers is debatable. Traceability labelling, for example, assures consumers regarding the feasibility of tracing back to the origin in case of a food safety crisis. Especially in case of a food safety event this type of information becomes relevant, though mainly for legal purposes and efficient product recall and recovery (Verbeke and Ward, 2006). Otherwise it may be of little value and legibility to the end user. The General Food Law Regulation EC 178/2002 requires the traceability of all foodstuff, thus traceability has become mandatory and is no longer a criterion on which products can be differentiated. As a result, specific labelling of compliance with legal rules may be of little value to consumers. Simple compliance with mandatory standards is either not signalled to end users, or if signalled, it has little value since it does not allow consumers to draw meaningful quality expectations based on the information provision.

From a consumer perspective, labelling debates are about information, and its processing and use by the target audiences (Verbeke, 2005). Because many food products are low-involvement goods, i.e. products whose perceived importance is rather low in the purchasing decision at least relative to

more durable consumer goods, it is likely that consumers use label cues (if ever) as heuristics or easy decision rules that help them in making quick quality judgments (Verbeke and Ward, 2006). As such, consumers may use indications of origin, traditional attributes or a reference to organic standards as an easy decision criterion in their daily food purchasing. Nevertheless, in cases where uncertainty about quality or safety is elevated and where one would expect consumer involvement to increase, labelling information can become a more dominant means for inferring product quality. This has been reported for example, for meat labels shortly after the bovine spongiform encephalopathy (BSE) crisis in Europe (Becker, 2000; Verbeke and Viaene, 1999). Thus labels, including country of origin labels, geographical indications of origin, quality marks or organic labels are extrinsic information cues that can assist consumers in inferring product quality and forming quality expectations. Labels often signal a particular credence quality. Through their signal value and visibility on product packages – similar to brands – such labels may reach the status of a search cue, i.e. an information cue that consumers may more actively search for during their shopping and purchasing decision process.

Quality expectations impact on attitudes and behaviours related to food purchasing, satisfaction and future purchasing decisions (Grunert, 2005). Consumers typically weigh the perceived value of labels or specific information cues on labels against other product attributes during their decision-making. Since products are bundles of attributes and since they are marketed carrying a bundle of cues for consumers attempting to signify a certain quality, it is not easy to discern the true premium tied to a single indicator on a particular food label (Kerr, 2006).

Importantly, for labels to have value for consumers, they must be communicated, attended to and understood in the first instance. Studies indicate that this condition is often not fulfilled. Grunert (2005) reported that information cues relating to quality, origin or traceability may be relatively difficult for consumers to interpret, compared to more easily understood indications such as expiry or best before date. As a result, this type of labelling information is unlikely to have a strong effect on consumers' quality evaluation when consumers lack concrete knowledge about the region of origin or when they do not consider the signalled quality as desirable.

Consumer interest in origin-labelled foods

Informing consumers about the geographical origin of foods by means of a PDO or PGI logo is a first specific component of the EU agricultural quality policy (Figure 1). Several empirical studies have concentrated on mapping the value consumers place on origin-labelling information. For example, Van Ittersum *et al.* (2007) concluded that consumers of regional products value regional certification labels. Consumers' image of regional certification, more specifically PDO labels, consisted of two dimensions, namely a quality warranty dimension and an economic support dimension. Furthermore, they reported that both dimensions were positively related to consumers' willingness to buy and

Figure 1. European Community (EC) logos for geographical indications (PDO and PGI).

pay for the protected regional product. The quality warranty dimension enhanced consumers' perceived product quality, while the economic support dimension associated with stronger beliefs regarding the support of the regional economy. Also Caporale and Monteleone (2001) indicated that providing information on the origin of food products, which was virgin olive oil in this case, had a significant positive impact on product acceptability. Loureiro and Umberger (2003) calculated that US consumers were willing to pay a price premium of up to 38% for 'US certified steak', and even up to 58% for 'US certified hamburger'. The results of the study by Roosen *et al.* (2003) indicated that consumers place more importance on labels of origin than on private brands in the case of beef. More specifically, in Germany and France the attribute origin received the highest ranking of all steak attributes. Finally, Enneking (2004) reported that third-party certified quality and safety labelling significantly influenced German consumers' choice behaviour and their willingness to pay a premium for liver sausages, even on top of premium branding strategies.

In contrast, Bonnet and Simioni (2001) concluded that it cannot be taken for granted that consumers in general value the quality signal provided by a PDO label. The latter study dealt mainly with branded products, more specifically branded Camembert cheese, and it concluded that brands appeared to be more relevant than origin labels in consumers' valuation of food products. In a similar vein, Loureiro and Umberger (2007) concluded that geographical indications in the form of country of origin labelling for beef was not valued as the most important quality attribute. Instead, consumers valued food safety inspection certification more. This led these authors to conclude that geographical indications may only become a signal of quality if the source of origin itself is associated with higher food safety or quality. Van Ittersum *et al.* (2007) stressed the importance of perceived quality as a determinant of willingness to buy and pay extra for protected regional products. However, the influence of geographical indications on product preference only held for specific consumer segments, most specifically for residents in the product's region of origin.

Studies with meat consumers in Belgium indicated that consumer interest was generally low for direct indications of traceability, moderate for country of origin, and high for direct indications of quality (Verbeke and Ward, 2006; Verbeke *et al.,* 2002). Best before date, meat type and the beef label in general attracted the highest levels of attention among consumers. Consumers' attention levels to quality labels or quality marks were higher than attention to country of origin indicators. The studies concluded that it was rather surprising that the country of origin indications received relatively little importance and attention. A bigger impact could have been expected given the large amount of negative press associated with the safety of beef (more specifically BSE) in the study's time period (1998-2001), especially with beef originating from some specific countries. This finding suggests that a designation of beef origin was not automatically associated with higher safety or better quality, which is in line with findings by Bernués *et al.* (2003) and more recently also Loureiro and Umberger (2007). Nevertheless, an assessment of the impact of a mass media information campaign that aimed at informing consumers about beef quality demonstrated that the values consumers place on country of origin and quality labels can be changed positively through communications (Verbeke *et al.,* 2002). The findings herewith underscore a certain potential of indications of origin and quality in marketing strategies, when appropriately advertised through marketing communication campaigns.

In addition to studies on general consumer interest on geographical indications as a sign of food quality, it is also relevant to gain insight into possible drivers for purchase of products with origin labels. Verbeke and Roosen (2009) reported that both for fresh meat in general, as well as for different species meat separately (beef, pork, poultry), the shares of quality and region of origin-labelled meat purchase correlated positively with consumers' health orientation, thus indicating that quality and region of origin labels appeal relatively more to consumers with a stronger interest in personal health and eating healthily. The share of region of origin-labelled meat also correlated negatively with convenience orientation. This suggests that region of origin-labelled meat appeals rather to consumers with a lower interest in convenience, or alternatively, appeals more to people

who are willing to devote more time and effort to the purchase of this type of product. In qualitative exploratory studies (Verbeke *et al.,* 2005), consumers indicated they perceived the purchase of meat with an indication of origin as less convenient because they believed products with this kind of indication are less readily available.

In conclusion, findings from reviewed consumer studies are not unanimous with respect to whether labelling cues such as country of origin labels, geographical indications or quality labels have a favourable impact on consumers' product valuation. The diversity of empirical findings suggests though that there are opportunities; that the perceived value of geographical indications of origin depends on product-related, environment-related (institutional and regulatory) and person-related factors, and in addition, can be favourably influenced by effective communications.

Consumer-based definition and perception of traditional foods

The EU TSG label highlights the traditional character of foods, either in their composition or means and methods of production (Figure 2). Traditional food products (TFP) constitute a product category that gained considerable interest recently in line with an overall trend related to authenticity.

The EU-funded project TRUEFOOD (www.truefood.eu) sought a consumer-based definition of traditional foods through implementing qualitative and quantitative consumer research. In a first phase of the consumer study, four main dimensions were distinguished in the way European consumers define the concept of TFP based on focus group discussions and word association tests (Guerrero *et al.,* 2009; 2010). The first dimension of the definition of TFP was habits and naturalness. The TFP were perceived by European consumers as food products that can be eaten every day or quite frequently, that are part of daily life, and are commonly used. Most consumers also associated TFP with habits and habitual or frequently occurring consumption. Some traditional food products were also defined as seasonal, or consumed at special occasions such as Christmas and Easter. The concept of a traditional food was associated with being anchored in the past, transmitted from one generation to the next, something that has been consumed from the past, has existed for a long time, that has always been part of the consumers' life, usually in a specific region. The TFP concept also included aspects related to health, to naturalness, to being homemade, an artisan character, made and processed on the farm, without industrial handling, and without the use of additives.

A second dimension was called origin and locality. Tradition in relation to food was linked to food origin and in this sense European consumers agreed that traditions cannot be readily exported. Local products outside their area of influence, outside their locality, region or country are likely to be perceived as regular products, thus losing all or an important part of the additional emotional values and feelings that may be conferred on consumers in their original place of manufacturing

Figure 2. European Community (EC) logo for traditional specialities (TSG).

and/or distribution. However, some consumers participating in the focus groups stated that in certain cases traditions may be created or taken over from other regions or countries, because information, fashions or globalization may spread some traditions all over the world and may convert even a non-traditional product into a traditional one over time.

A third dimension pertained to processing and elaboration. There was general agreement across countries regarding the importance of the elaboration of the food. It seemed more appropriate to talk about traditional cuisine than to talk about TFP. In many cases, it is the elaboration that makes the difference between a traditional and a non-traditional food product. For example, whereas beef or pork may be common products, specific preparations such as stews or goulash may be positioned and perceived as traditional foods. In this context, the gastronomic heritage and artisan character of the elaboration method acquire great importance. When dealing with food, the transfer of the know-how or culinary arts among generations constitutes the gastronomic heritage. To be traditional a food product not only has to contain traditional ingredients, but also has to be processed in a traditional way, according to traditional recipes. The TFP were perceived in general as simple products, with rather low complexity. They also tend to be basic, natural and pure, often in the sense that little or no processing or manipulation has occurred after the primary production of the food and its ingredients.

Sensory properties constituted the fourth dimension in the definition of the concept of TFP. Taste was an important dimension, with distinct taste emerging as one of the strongest characteristics of TFP. The importance of sensory characteristics as a quality dimension in determining consumers' acceptance or rejection has been pointed out in a large number of previous studies and is widely accepted. Sensory parameters were mentioned as one of the simplest and easiest ways to recognize and identify the authenticity and traditional character of a food product.

The second phase of the TRUEFOOD consumer study was quantitative and included web-based surveys of about 4,800 European citizens on their definition of traditional foods. Based on the quantitative evaluation scores given by the study participants, the following consumer-driven definition for the concept of TFP was set forth: 'a traditional food product is a product frequently consumed or associated to specific celebrations and/or seasons, transmitted from one generation to another, made in a specific way according to gastronomic heritage, naturally processed, and distinguished and known because of its sensory properties and associated to a certain local area, region or country' (Vanhonacker *et al.,* 2010). Several elements of this definition were widely supported by European consumers from each of the countries involved in the study. These elements included the association with a long existence or history, a high degree of consumer familiarity, the presence of specific sensory properties, seasonal availability and authenticity. The latter aspect relating to authenticity has a clear link with the concept of integrity in traditional food chains (Verbeke, 2011), since it was related in particular to an authentic origin, the use of authentic recipes, the combination of authentic raw materials and authentic ways of processing. Other elements, like associations with special occasions, locality, and natural processing were generally weaker and not equally shared across European food cultures. Hence, depending on the target audience, such elements may require more or less emphasis in communications about traditional foods.

The TRUEFOOD consumer study also revealed that traditional foods have a very favourable image among European consumers, which mainly stems from the products' specific taste, high and consistent quality, healthiness, safety and nutritional value (Vanhonacker *et al.,* 2010; Almli *et al.,* 2011). Interestingly also, perceptions on the low availability of traditional foods – sometimes even a flavour of exclusivity – and their time-consuming preparation, contributed positively to the image of these foods. Hence, from a consumer perspective, traditional foods are a broad and multifaceted concept that is difficult to cover with a concise and short definition. The insights from this study suggested that the integrity of traditional foods and traditional food supply chains may be judged by consumers against a wide and flexible range of criteria as specified in the proposed definition.

Consumer issues in relation to organic foods

The EU organic farming policy is a specific component of the overall EU agricultural product quality policy. Products that meet the EU organic farming regulation (Council Regulation EC 824/2007) are signalled by the recently established EU organic lobo which is obligatory for all pre-packed organic food products within the EU since July 2010 (Figure 3). The way in which consumers perceive organic products has been investigated in numerous studies, as reviewed for example by Bonti-Ankomah and Yiridoe (2006) and Aertsens *et al.* (2009). Based on existing consumer science literature, organic foods are mainly perceived as healthier and safer than conventional foods. Many consumers are also convinced that organic products are more environmentally friendly and tastier than conventionally grown foods. A lower perceived level of contamination and a higher nutrient content of organic vegetables were shown to be the two major drivers for why consumers believed in the health advantage of organic over conventional vegetables (Hoefkens *et al.,* 2009). Despite the fact that a majority of consumers hold positive attitudes towards organic foods, the market share of organic products remains low, varying from less than 1% in some Southern, Central and Eastern European countries to slightly more than 5% in Austria and Denmark (Aertsens *et al.,* 2009). The strongest barriers to increased organic consumption are the price premium and the perceived lack of availability of organic products. Other possible barriers pertain to uncertainty about the distinct character of organic products and lack of trust in the certification process.

Socio-demographic characteristics have been reported to be associated with the purchase of organic food, though their role in explaining variability in organic food purchases is rather limited. Several studies have concluded that women hold more positive attitudes towards organic foods than men, and that families with children are more likely to purchase organic foods than families without children. Findings with respect to age and education effects on organic food purchase are not consistent in one particular direction. In addition to the moderate impact of socio-demographics, values are important motives for organic food purchase. Health motives, which are related to the value security, are among the strongest arguments for purchasing organic foods. In addition, taste expectations, which are related to the value hedonism, play an important role in the choice for organic products. Finally, interest in the value universalism, which relates to the protection of the environment and animal welfare, is an important driver for food choice among regular organic food consumers (Aertsens *et al.,* 2009).

Apart from attitudes, values and demographics, cognitive factors also shape organic food choice. The study by Aertsens *et al.* (2011) reported that higher objective (factual) and higher subjective (perceived) knowledge of organic food production relate to a more positive attitude towards organic food, as well as to a greater experience with organic food, and a more frequent use of information about organic foods. Possible explanations are that people who hold a more positive attitude towards organic foods may be more interested and search for more information, thereby increasing their objective knowledge. On the other hand, greater knowledge concerning organic food production may

Figure 3. European Union (EU) organic farming logo.

have a positive influence on attitude because the principles of organic food production are linked by consumers in a positive way with aforementioned values such as security, hedonism and universalism.

Perceptions about organic foods do not necessarily match scientific realities. The study by Hoefkens *et al.* (2009) reported that heavy users of organic food – defined as people whose vegetable consumption consists of 80% or more of organic vegetables – held the strongest favourable beliefs about organic compared to conventional vegetables. Compared to other user groups, heavy users perceived organic vegetables to be significantly healthier and better controlled, and to contain more nutrients, less contaminants, no synthetic pesticide residues, less harmful micro-organisms and less mycotoxins. The study also observed gaps between consumer perception and current scientific evidence concerning the nutritional value and safety of organic vegetables compared to conventional vegetables. Consumers in general seemed to overestimate the nutritional and safety benefits of organic vegetables, with the exception of synthetic pesticide residues. Consumers' beliefs on the absence of residues of synthetic pesticides in organic vegetables and lower nitrate levels are to a large extent supported by scientific evidence. The gap between facts and consumers' perceptions appeared to be greatest for the healthiness characteristics, nutritional value and microbiological safety of vegetables, especially among older consumers with children. The mismatch between perceptions and facts was stronger when the consumption frequency was higher, but was independent of gender, place of residence, education and income level. The study overall indicated that organic vegetables benefit from very favourable consumer perceptions, some of which cannot be scientifically substantiated. As a result, the study recommended caution with respect to exploiting propositions that are not fully scientifically supported and recommended the organic sector to capitalise rather on emotional value than providing rational argumentations for the choice of organic vegetables.

Conclusions

The EU agricultural product quality policy concentrates on product qualities such as origin, a product's traditional character or organic production methods that allow European producers to differentiate their products in an increasingly competitive and globalized food market. These qualities generally appeal to European food consumers. The market differentiation potential of quality products relates to a large extent to credence qualities. These are qualities that cannot be readily verified or experienced by consumers and for which reliable and trustworthy information and communication is crucial. Certification and labelling schemes are most commonly used for this purpose. Consumer motives for the choice of quality products pertain to higher health, safety, sensory and increasingly also sustainability beliefs and expectations, some of which may not necessarily match with scientific realities. Despite strong motives, several real or perceived barriers persist, such as price, availability or uncertainty with respect to the true production method or product character. Such barriers may prevent consistent alignment of favourable attitudes with choice and eating behaviour.

Local market realities are reflected in consumers' reactions toward label cues signalling quality and origin. Additional studies investigating consumer interest in geographical and/or quality indications, including the aspect of cross-cultural variability and differences are needed. Many of the studies referred to in this chapter considered aggregated consumer data without focusing on potential differences between consumer segments, or without concentrating on particular niche markets. Origin- and other quality-labelled products may appeal more to particular market segments, e.g. consumers with a stronger interest in high-quality high-priced foods, specific socio-demographic groups, or residents of the region of provenance of the considered foods. Appropriate market segmentation and targeting have been stressed as a key success factor for food quality labelling and information provision programs (Verbeke, 2005). Therefore, investigating particularities of specific markets and market segments, both cross-culturally and within a country are recommended. The wide array of studies and their specific geographical scope reported in this book volume contribute to bridging part of this gap.

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Trends in food choice and nutrition

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Abstract

'Trends' in the way we eat are discussed in this chapter. Three potential trends are taken as points of departure, namely health concerns, convenience, and process characteristics. Some of the evidence provided may not necessarily be evidence of a trend itself, but can be regarded as indicators or important issues that may change the way we eat. However, the food industry plays a major part in shaping these trends, and both direction and speed will depend on how the food industry handles these developments.

Keywords: health concerns, convenience, process characteristics

Changes in the way we eat

The way we eat is changing. Everybody is talking about it. There is a steady stream of conferences and lectures on the consumer of the future, on trends in food consumption, about the rapid changes in consumer demand, about the need for innovation by food producers as a way to survive. Major topics mentioned in this context are usually health concerns, the role of convenience, and the importance of ethical and environmental issues.

As for most other 'trends' the evidence is equivocal and sometimes anecdotal. While we do have a growth of convenience products, we also have a slow food movement and a growth in the sales of kitchens and cookbooks. While there is considerable evidence of peoples' health concerns, their eating habits do not seem to become healthier. In spite of considerable discussion on organic production and animal welfare, the market shares of products positioned accordingly remain small (e.g. Willer and Yussefi, 2006). A recent, comprehensive study on meal patterns in the Nordic countries showed that, in spite of all talk about the breakdown of traditional meal patterns, by far most meals follow the traditional patterns and do assemble the family (Kjærnes, 2001). In most cases we have no longitudinal data that would provide solid evidence that we really are dealing with a 'trend' here. In this paper, I will therefore choose a cautious approach to identifying 'trends' in the way we eat. Taking points of departure in the three potential trends mentioned above – health concerns, convenience, and process characteristics – I will provide some evidence that may not necessarily be evidence of a trend itself, but can be regarded as indicators or important issues that may change the way we eat.

Health concerns

Healthy eating has been high on the public agenda for some time, and there are no signs that this will change in the immediate future. The debate is partly fuelled by the increasing incidence of obesity in most parts of the world, and partly by a range of lifestyle-related diseases (like cardiovascular diseases and diabetes) that are attributed at least to some extent to unhealthy eating habits.

Most consumers are aware of the link between eating and health, and healthiness of food is, after taste, the second major criterion in the quality evaluation of food products across a range of studies (Grunert, 2005). Still, there is a widespread opinion that people do not eat healthily enough. Some consumers are just not very interested in healthy eating, or believe that their diet is healthy enough in the first place. Also, some consumers may find it hard to change their habitual eating behaviour. Other consumers may find that there is a trade-off between health, taste, and convenience, and are

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not willing to make compromises (Kazbare *et al.,* 2010). The fact that good taste leads to immediate gratification, whereas healthiness of a food is an abstract credence characteristic with potential rewards far away in the future, does not help. Finally, some consumers may simply find it difficult to find out which products are more and which are less healthy.

In the interface between consumer health concerns, public policy aiming to further healthy eating, and industry interest in finding new ways of positioning food products, a number of developments are currently occurring that will make healthiness a more prominent characteristic in food choice. These include nutrition labelling, functional foods, use of health and nutrition claims, and health branding.

Nutrition labelling is an attempt to further healthy eating by giving more product-related information. It thus presupposes that people are interested in healthy eating, but that they lack information for distinguishing the more from the less healthy products. New EU legislation on the topic is on its way, a number of national schemes have been advanced, and parts of industry and retailers have introduced voluntary schemes. All this has resulted in a heated debate on the best nutrition labelling scheme, especially between advocates of so-called traffic light labelling and advocates of the General Daily Allowance (GDA) scheme.

Consumer research (see Grunert and Wills, 2007; 2008, for a summary) has indicated that most consumers like to have nutrition information on food products, and that they especially like the idea of simplified nutrition information on the front of the package (so-called signposting). Whether it has any impact on consumer choice is much less clear. A recent pan-European study indicated that while the majority of consumers can understand the most common labelling formats and use them to identify the healthiest of a range of products, the percentage of consumers actually looking for such information when shopping is not higher than about 15%, with a good deal of national variation (see Grunert *et al.,* 2010), and research using eye-tracking methodology (a method that allows to follow how the eye fixates on different parts of the environment) suggests that attention spans during shopping may be too short for processing the information to such an extent that it could affect choices (Grunert *et al.,* 2012).

Functional foods, i.e. foods that have been modified (usually by some kind of enrichment) for additional health benefits, have been a growing market for some years, but the growth in Europe has been slower than some advocates of functional foods thought, and there have been many failures in attempts to introduce such products on the market. It seems that European consumers' emphasis on the naturalness of food products stands in the way of a more rapid proliferation of functional foods (which almost by definition are regarded as less natural) and confines them to niche products for consumers with special health concerns or problems (Bech-Larsen and Scholderer, 2007). This is supported by studies showing that, on average, consumers rate a product with an added functional benefit as less natural, less tasty, less attractive generally speaking, and even lower in overall healthiness (in spite of the added health benefit) compared to the same product without the enrichment, as shown in Figure 1 (from Lähteenmäki *et al.,* 2010).

Part of the problem in capitalizing on the health trend from the industry perspective is that healthiness is, as stated above, a credence characteristic and therefore has to be communicated. This communication, at least the part of it that occurs via advertising and on the product label, is heavily regulated. The recent new legislation on the use of nutrition and health claims does open up the possibility for more health claims in the marketing of food products, but at the same time makes substantial requirements with regard to the scientific documentation needed for approval of a health claim. In addition to the legal requirements, consumers must be able to understand the health claim and find it relevant – an issue still clouded by many unresolved questions on, for example, positive or negative framing (is the product good for something, or does it prevent something), use of qualifiers (the product 'may' instead of the product 'will'), and long or short claims (Bech-Larsen

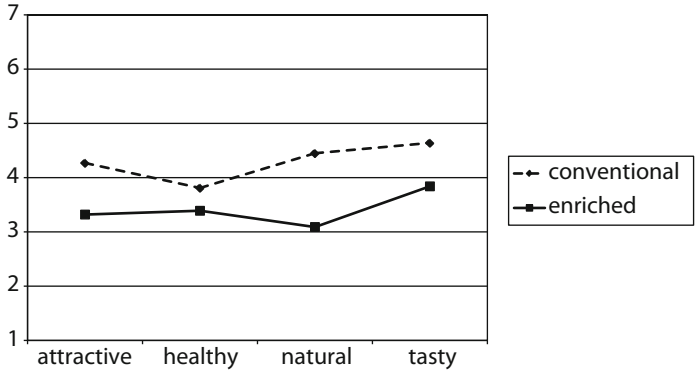

Figure 1. Evaluation of conventional and enriched bread product (adapted from Lähteenmäki et al.*, 2010, higher numbers indicate more positive evaluation, Nordic sample, n=4,612).*

and Grunert, 2003; Van Kleef *et al.,* 2005; Van Trijp and Van der Lans, 2007; Kapsak *et al.,* 2008; Grunert *et al.,* 2009).

Of course, healthiness can also be communicated in 'softer' ways, and industry has already some time ago started to intentionally build brands and sub-brands where healthiness is a major part of the brand image (Chrysochou, 2010). The brand is a major decision facilitator for consumers, and if problems of credibility and possible misuse can be solved, health branding can become an important supplement to the 'hard' forms of health information, to the benefit of both consumers and industry.

Convenience

Everybody agrees that the importance of convenience in the development and marketing of food products and services is increasing. In a US survey, 55% of respondents indicated that convenience is 'very important' in their food purchases (Senauer, 2001). In many countries of the Western world, the share of meals eaten outside the home is increasing. But what, actually, do we mean when we say convenience? Convenience is a multi-facetted phenomenon (Jack *et al.*, 1997; Costa *et al.*, 2001). Darian and Cohen (1995) suggested that convenience can cover any savings of time, physical energy, or mental energy that occurs during one or more of the phases of the home food production chain: deciding what to eat, purchasing, preparation, consumption and cleaning up. Convenience then covers a good deal more than ready-made meals or eating out.

Why is convenience a trend? Many relate it to changing demographics, especially the increase of female participation in the labour force, but attempts to relate such variables directly to the demand for convenience-related food products and services have led to mixed results (e.g. Strober and Weinberg, 1980; Darin and Klein, 1989; Kim, 1989). Others argue that the convenience trend is mainly a question of changing attitudes, with the pride in homemade food and the negative attitude towards convenience products slowly disappearing (e.g. Candel, 2001; Cowan *et al.,* 2001; Swoboda and Morschett, 2001). The truth may lie in a combination of both arguments, as Scholderer and Grunert (2005) have shown. They demonstrated that convenience orientation acts as a mediator between perceived resources (in terms of disposable time and money) and convenience-oriented behaviour (like buying convenience foods). In addition, they showed that convenience orientation is also affected by other factors, notably food-related motives, such as involvement with food (the conceptual model is shown in Figure 2).

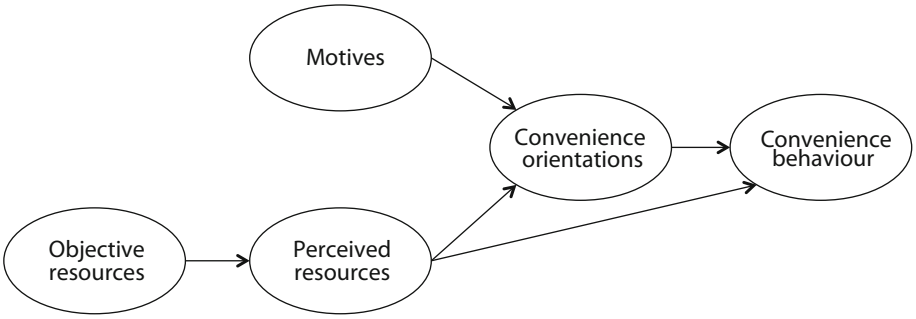

Figure 2. Conceptual model of convenience demand (from Scholderer and Grunert, 2005).

Therefore, we cannot expect a simple relationship between, for example, time scarcity and demand for convenience products. First of all, it is the perceived scarcity of time and the experience of stress in daily life that affects behaviour. Second, food-related motives and attitudes may either reinforce or counteract the ensuing tendency towards more convenience in the kitchen. More importantly, we would then also expect that different types of consumers, even when they experience the same type of stress and time scarcity, would demand different types of convenience, in order to retain consistency with their general food-related lifestyle. A major study of demand for convenience products and services in Ireland (Ryan *et al.*, 2002; De Boer *et al.*, 2004) demonstrated very nicely that demand for convenience can be high in segments as different as 'adventurous' and 'extremely uninvolved' food consumers.

The food industry has responded to the convenience trend mostly in the ready meal category. The range of products available still differs considerably between countries, even within Europe, but it is probably safe to say that the bulk of products in many countries (the UK being the major exception) are still mainly targeted more at the uninvolved than at the food-loving consumer segments. Food-loving consumer segments typically like to retain a degree of freedom in their meal preparation and therefore prefer meal component types of products, which generally have been forthcoming more slowly.

Process characteristics

One of the recurring themes in discussions about the future of the food industry is the extent to which consumers are concerned about food production issues such as organic production, local production, animal welfare, use of genetically modified organisms (GMOs) and sustainability. Numerous studies have shown that at least some consumers have concerns of that nature, and the range of food scandals that we have observed has sharpened public and especially media attention. But there is also a widespread opinion that the attitudes that consumers express may not be strongly related to their purchasing behaviour, as mirrored by the low market shares of, for example, organic products in many countries.

Contrary to what many non-social scientists believe, the issue of the relationship between attitude and behaviour – or the lack of it – is well-known in the social sciences, and has been studied for more than 50 years. There is a good body of knowledge on the factors that determine whether a given attitude will be related to behaviour or not (e.g. Fazio, 1990).

We all have lots of attitudes that affect our behaviour only occasionally. Usually, these will be attitudes that are not strongly held, and attitudes that are not very accessible to our thinking at the time of the behaviour. Simply speaking strongly held attitudes are those where the attitude object is embedded in a network of associations, and where these associations are based on own experience.

The less we know, and the more what we know is based on indirect sources, the less these attitudes will affect our behaviour. Many people may voice a critical attitude towards pig production when asked, but most of them will know little about the topic, and what they do know will mostly not be from direct personal experience. Such attitudes will affect our behaviour only occasionally.

Whether they affect our behaviour or not, will then depend on attitude accessibility at the time of the behaviour – in the shop, for example. Here, we should remember that most grocery shopping occurs in a time-pressed and information-overloaded situation. Many other things are on people's minds. But external factors can make people remember their attitudes – 'activate' them, in terms of cognitive psychology. Such activation can, for example, be caused by promotions at the point of sale. Most consumers probably bring a whole range of potentially relevant, but not ordinarily used attitudes to the shop. Which of these, if any, become relevant for their shopping actions will then depend on the stimuli to which they are exposed in the shopping environment.

The fact that people voice concerns about topics such as animal welfare and other aspects of food production, especially when they are prompted to express their degree of concern by an interviewer, is thus not inconsistent with the fact that these concerns affect their shopping behaviour only occasionally. Consumers are often quite aware of this. As an example, studies in several European countries (Holm and Møhl, 2000; Ngapo *et al.*, 2004) demonstrated once more that consumers have lots of concerns about animal production, but also showed that consumers themselves freely remarked that there was little or no link between the negative image of production methods and their purchasing behaviour.

The current situation is therefore that many people have attitudes towards food production, but that for most consumers these are weak and will, in most situations, not affect their purchasing behaviour. However, changes are possible. Even weak attitudes may be activated at the place of purchase and then become relevant for buying behaviour in that particular situation. Even this does not necessarily imply that the consumer will then buy a product positioned as, for example, an animal welfare product, but it implies that such product attributes, when linked to an activated attitude, will enter the trade-off among different buying criteria. Attitudes towards food production will then not generally affect buying behaviour, but they can be regarded as a potential that can be tapped by creative marketing and product development.

When there is no trade-off between the process characteristic and, for example, taste and consumers' positive attitude to the process characteristics has been activated, the effects can be quite dramatic. As examples, both country of origin and organic production have been shown to have halo effects with regard to quality perception, meaning that consumers tend to believe that, for example, an organically produced piece of meat is better not only in terms of its process characteristics, but also in terms of healthiness and sensory quality (e.g. Hoffmann, 2000, for origin effects, and Scholderer *et al.*, 2004, for effects of outdoor pig production). When differences between the physical properties of conventional and organic alternatives are small, these expectations may even persist in the light of potentially disconfirming experience. Scholderer *et al.* (2004) measured both expected and experienced quality of pork chops in a completely balanced design, where both actual type of production (conventional vs. organic) and information on the production method (none/conventional/free-range/organic) were varied. The results can be seen in Figure 3. While actual meat type had a small, but significant effect on 3 out of 4 dimensions of experienced quality (after tasting samples), with the organic meat receiving scores that were a little lower, the information on the production method had a considerably larger, opposite effect, so that consumers believing that they tasted organic or free-range pork actually perceived the quality of the meat as higher, irrespective of which type of meat they actually ate. Similarly, McIlveen and Buchanan (2001) demonstrated that information on the point of purchase – a butcher, a low and a high quality supermarket – affected the sensory evaluation of meat samples.

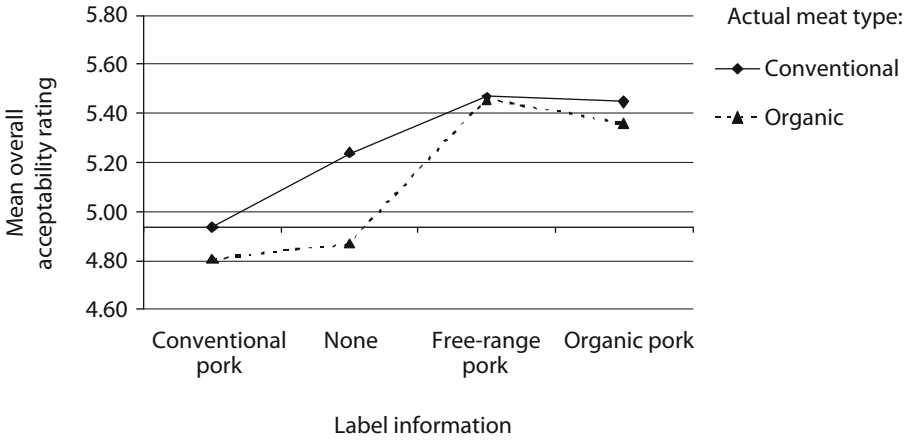

Figure 3. Experienced overall quality perception based on meat type and label information (adapted from Scholderer et al.*, 2004, Danish sample, n=185).*

Conclusions

There is reason to believe that health, convenience and process characteristics are three trends that are about to change the way we eat. However, the food industry plays a major part in shaping these trends, and both direction and speed will depend on how the food industry takes up these developments.

Health is high on the public agenda and at least a share of consumers is concerned about healthy eating and would, in principle like to change their behaviour. The industry can facilitate this development by developing healthier products, providing appropriate information on labels and in advertising, develop functional products that combine scientific substantiation with thorough consumer insights, and by making health part of their corporate image.

Convenience has been an ongoing trend for some time and will continue, but the speed will largely depend on the industry realizing that convenience means different things to different people, and that there is a need for more products that combine convenience with healthiness and good sensory and culinary properties.

As for process characteristics – organic production, animal welfare, free of GMOs, fair trade and others – there is a considerable potential due to many consumers positive attitude, which only occasionally is translated into actual demand. The food industry can contribute to breaking down the barriers for making these attitudes behaviourally relevant by developing products that have process characteristics as an added benefit, but otherwise can compete with conventional products on all other quality dimensions, while retaining a realistic price differential. The issue of process characteristics is not only for agriculture but also for food processing as consumers form opinions about which types of production they like and which they do not, and industry should take these seriously.

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Consumer food sciences: some theories, models and research methods (using Western Balkan countries as a case study)

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Abstract

This contribution explores the field of food consumer science. It includes a discussion of the main aspects of food consumer science, relevant theory and appropriate research methods. The application to a particular project is discussed, specifically Focus Balkans, a project on consumer food sciences in the Western Balkan countries.

Keywords: consumer science, food, theory, models, research methods, framework

Introduction

The objective of this paper is to explore the common food consumer science field, provide a description of the 'state of the art' and explicitly to identify 'gaps in knowledge'. These gaps could refer to theoretical gaps in the existing literature or practical gaps in the organizational structures or applications in the field. To identify gaps, certain knowledge of the current (base) situation is needed: the so called 'state of the art'. This reasoning was applied to the Focus Balkans project, the objective of which was '*to improve competencies and understanding in the field of consumer food science in the Western Balkan Countries'*.

This contribution provides a basis for the design and review of projects in the area of food consumer science and marketing. Specifically, it provides a conceptual framework linking consumer behaviour to food and health, nutrition and food safety issues.

- In Section 1, the boundaries of research efforts and dissemination work in food consumer sciences are described. Some basic definitions are formulated.
- The theory of food consumption and food consumer models are summarised in Section 2.
- In Section 3 we elaborate on food marketing and on data in this area from the Western Balkan countries.
- Research methods available are outlined in Section 4.

Section 1. Orientation of food consumer sciences

Over the past decades, scientists have made significant progress in the field of consumer science in general, and food consumer science in particular. The aim of this section is to give a short overview of the main achievements in this field. Also, an important condition for efficient work is to define the area of food consumer science we are dealing with in the project. This is discussed in this section. We will argue that our framework is delimited by the merged fields of consumer science and food market science.

Field of interest

An important condition for efficient work is to define the area of food consumer science we want to deal with. The question is how to delimit or demarcate the area of interest?

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Consumer science is a relative young science. Engel *et al.* (1995) describe the emergence of consumer science in the 1960's, especially the phenomenon of consumer behaviour. They state in the introduction and overview of the book that 'no introduction of the field would be complete without an examination of global market segments and strategies'. As dominant forces shaping consumer research they note that:

> The analysis of consumer behaviour has its initial roots in economic theory and later in marketing. Its content and methodology are shaped by these essential considerations:
> 1. the factors that move an economy from being production-driven to market-driven; and
> 2. the level of sophistication with which human behaviour is understood in psychology and other behavioural sciences.

Solomon *et al.* (2006) argue:

> The field of consumer behaviour is, to us, the study of how the world is influenced by the action of marketers... Our understanding of this field goes beyond looking at the act of buying only, but to both having and being as well. Consumer behaviour is much more than buying things; it also embraces the study about having (or not having) things affect our lives, and how our possessions influence the way we feel about ourselves and about each other – our state of being. In addition to understanding why people buy things, we also try to appreciate how products, services and consumption activities contribute to the broader social world we experience. Whether shopping, cooking, cleaning, playing football or hockey, lying on the beach, emailing or texting friends, or even looking at ourselves in the mirror, our lives are touched by the marketing system.

So they describe the consumers as 'actors on the marketplace stage'. They also note that:

> The field of consumer science is young, dynamic and in flux. It is constantly being cross-fertilized by perspectives from many different disciplines: every social discipline, plus a few represent the physical sciences and the arts. From this melting pot has come a healthy debate among research perspectives, viewpoints regarding appropriate research methods, and even deeply held beliefs about what are and what are not appropriate issues for consumer researchers to study in the first place.

The closely related area of marketing research and its methodology is extensively described by various authors, for instance by Churchill and Iacobussy (2005). In all this literature the interaction between consumer and the market is paramount. Therefore, it is possible to conceptualise food consumer science as consisting of three pillars: the consumer, the food market, and the food processor and producer. The common binding theme is food consumer science. Food consumer science thus seeks to explain the interaction of the consumer with the market place, processors and producers. A whole set of disciplines relates to consumer science, like economics, sociology, psychology and marketing. Each of the three pillars (consumer, market and processor/producer) is connected to some disciplines. Figure 1 illustrates the relationships between consumer, market and processor/producer in a consumer science context.

As illustrated by the pyramid-circle model, a set of science disciplines relates to consumer science, and to each of the three pillars (consumer, market and processor/producer) behind food consumer science. Communication and corporate social responsibility are added as an element of supply chain management. The disciplines between brackets in Figure 1 are considered as being related to the field of food consumer science, but somewhat less essential than the other disciplines listed. However, it is necessary to realise that this approach to food consumer science is somewhat simplified. For

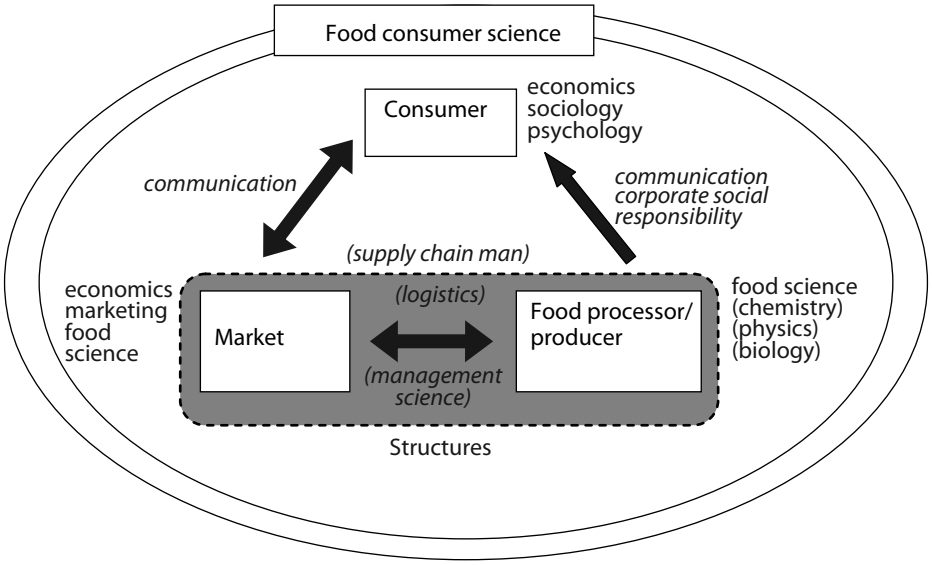

Figure 1. Pyramid-circle model explaining the interrelation of consumer, market and food processor/ producer in a consumer science approach.

instance, the market can also easily be seen as a structure that embraces 'consumers, food processors and supply chain' instead of positioning it into 3 pillars, the market being one of those.

Disciplines

Steenkamp (1997) described the role of agricultural and food products in respect to consumer science:

> Food has a central position in the life of consumers. It is the source of nutrition and hedonic experiences; it serves a social and cultural function, and accounts for a major share of consumer expenditure. Yet consumer behaviour with respect to foods has not attracted much systematic attention by consumer behaviour researchers. At least part of the difficulty in conducting research in this important area lies in the complexity and diversity of the influences at work in food choice and consumption, and in the fact that such research requires knowledge of the concepts of and insights from a wide range of science and social science disciplines, including food science, nutrition, medicine, psychology, psychophysics, sociology, economics, marketing and anthropology.

This segmentation of consumer science into a variety of disciplines as described Steenkamp (1997) and in the previous section 'Field of interest' is also the reason why consumer science as a whole does not fit into one model or theory. Consumer science is built on a variety of disciplines of which each discipline has its own theory and/or model(s). Some of the theories and models are listed in Table 1.

Definitions

Because many definitions co-exist for some basic concepts, it is useful to be precise in the definitions used for some basic concepts.

Table 1. Theories and models expressed by discipline related to food consumer science.

	Discipline	Theory or model
Food consumer science	Economics	Economic household models
	Food science / nutrition	Bio-psychological approach. Health belief model
	Psychology	Theory of reasoned action. Theory of planned behaviour
	Sociology	Food choice process model
	Other knowledge fields:	
	Communication	Theory of linear knowledge transfer or demand driven
	Supply chain management, aspects of corporate social responsibility	

Consumer

The consumer or user of food is a natural person, who buys goods and services to satisfy its own needs (de.wikipedia.org/wiki/Verbraucher).

Consumer science

Consumer science is the study of providing for the well-being of individuals and households in the context of how they are influenced by marketplace institutions and communities. Consumer science draws from fields such as economics, sociology, psychology, law, and business. Consumer behaviour, household finance, and consumer protection are major areas of consumer science.

Food consumer science

See 'Consumer science' in relation to food consumption

Market

A market is any one of a variety of different systems, institutions, procedures, social relations and infrastructures, whereby persons trade, and goods and services are exchanged, forming part of the economy. It is an arrangement that allows buyers and sellers to exchange things. Markets vary in size, range, geographic scale, location, types and variety of human communities, as well as the types of goods and services traded.

Marketing

The term 'marketing' is interpreted, in literature as well as in the everyday use, in very different ways (Table 2).

Table 2. Examples of definitions of 'marketing'.

Narrow definitions	Broad definitions
Marketing is a customer-oriented offer- and sales policy (Strecker *et al.,* 1990) Marketing (…) is a process that plans and implements exchange processes (…) (American Marketing Association, cited in Kotler, 1992: 16).	Marketing comprises all managerial processes (Bidlingmeier, cited in Besch, 1990) The functions of marketing concern the entire enterprise (Drucker, cited in Kotler, 1992: 3).

Section 2. Consumer behaviour: general models and food choice

This section addresses the topic of consumer behaviour relating to food. As a starting point, several descriptive models seek to list the factors that influence food choice. These factors can be divided into three categories:

- product;
- person; and
- environment (or situational context).

All these factors can, for example, be found in the studies and models of Kahn (1981), Randall and Sanjur (1981) and Gains (1996). In the model of Randall and Sanjur (1981), these three set of factors are shown to determine specific food preferences (Figure 2). Each group of factors includes several characteristics.

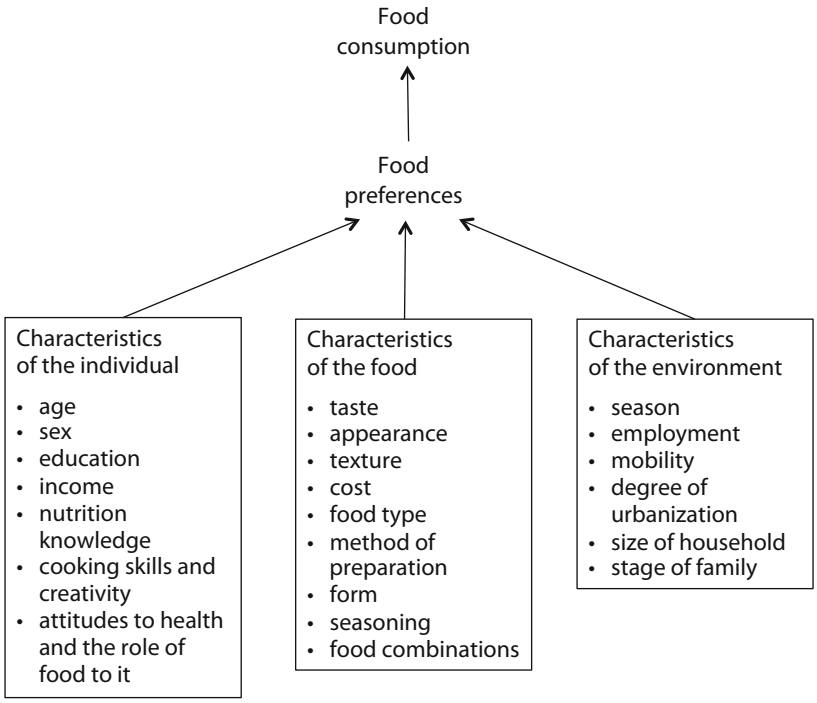

Figure 2. Factors influencing food preferences (Randall and Sanjur, 1981).

It should be noted, however, that the above model identifies factors (a list of variables) rather than causal relationships and remains largely descriptive in nature. Other, more complex models attempt to provide the basis for explaining, predicting and also controlling food choice, by demonstrating causal relationships. These attempts are not confined to one branch of the social sciences. Rather economists, sociologists, anthropologists and psychologists have all made significant contributions.

The rests of this section reviews three of the most influential models:
- economic household model;
- food choice process model;
- theory of reasoned action / theory of planned behaviour applied to food choice.

After describing the main features of each model, we evaluate the strengths and weaknesses of each approach.

Economic household model

This approach dates back to the work of Becker (1965), who developed a work – leisure model, where the household is the unit of analysis. He reasoned that households produce utility-yielding commodities (outputs) with combinations of market goods and time. The household can allocate its time to one of three uses:
- labour market time (generates income to acquire market goods);
- household production time (e.g. cooking); and
- consumption time (e.g. eating).

In relation to food, meals typically require labour to be allocated to all three uses:
- labour market time to generate the income to pay for ingredients;
- production time to cook the meal; and
- consumption time for eating.

The uses of time are however competitive with each other – each additional hour spent at work is one less hour that can be devoted to household production or consumption.

Bonke (1992) utilises Becker's (1965) model to analyse the effects of increases / decreases of income and disposable time on food purchasing behaviour. The former argues that Western societies witnessed in the post-war period rising incomes and an increase in the number of women in the labour market. The rise in women's working hours led to a decrease in the time available to spend on household activities (Grunert *et al*., 1996). Bonke (1992) argues that households with more money but less time to spend on household activities will substitute non-convenience foods for convenience foods, reducing the time spent on cooking. To test the relationships between disposable time, disposable income and food choice, he draws on cross-sectional data from Denmark. Foods were classified into non-convenience goods (i.e. ingredients used for complete cooking), semi-convenience goods (e.g. ready made sauces), and convenience goods (i.e. ready meals, meals eaten out of the home in bars and restaurants). Relative expenditure on the three food categories was assessed in terms of the household's disposable and non disposable time. Households that are both rich and busy were supposed to demand a higher proportion of convenience foods, while those households that are poor with a lot of disposable time would utilise a higher proportion of cheaper, non-convenience foods.

The data for Denmark confirmed Bonke's (1992) hypothesis: busy and rich households allocate a greater proportion of expenditure on convenience food and a smaller proportion on non-convenience foods (see Figure 3).

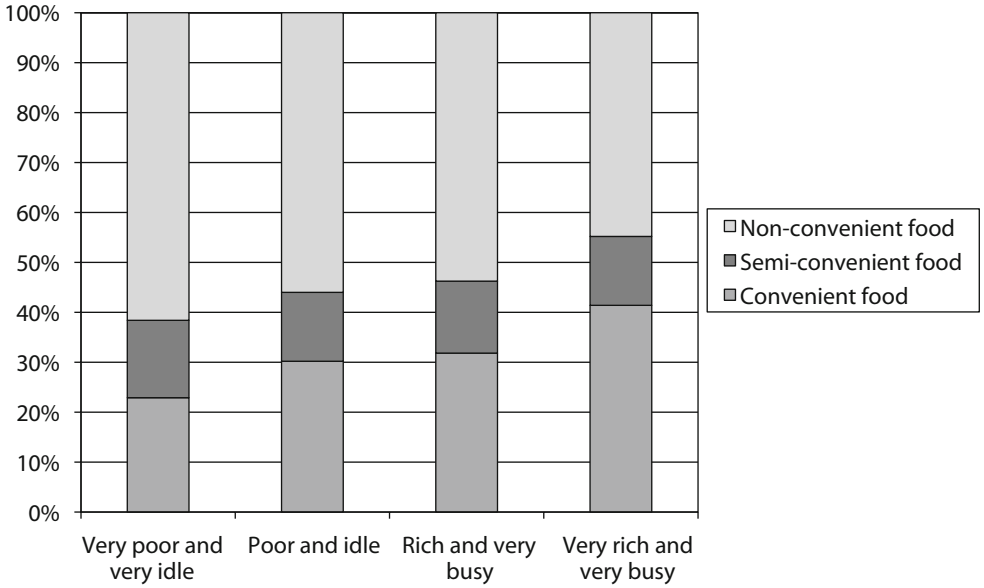

Figure 3. Expenditure on food with different degrees of convenience according to household resources (Bonke, 1992; Grunert et al*., 1996).*

The economic household model has been utilised to explain the rise in the number of restaurants and consumption of ready meals during periods of economic growth and the sensitivity in the fortunes of restaurants to changes in income (Schumacher and Boland, 2005). In keeping with Bonke's approach, the current global recession has been associated, in many countries, with a sharp fall in out of home expenditure on food and rising interest in 'grow your own' allotments and vegetable plots (Green, 2008). Grunert *et al*. (1996: 36) explain that Bonke's results 'confirm the expectation that consumers act rationally when buying food'.

However, the economic household model presents several limitations. For instance while the cross-sectional data from Denmark fit well, Bonke's approach is less able to explain cross-national variations in the consumption of convenience foods. For example, average incomes and labour market participation are higher in Sweden than Spain but the share of food spending accounted for by out of the home meals is significantly higher in the latter country (Swoboda and Morschett, 2001). Ready to cook products for consumption at home (while increasing sales in general in Western Europe) have greater penetration in the USA and the UK compared to France and Italy (Swoboda and Morschett, 2001) – a pattern which cannot be reduced solely to differences in incomes and disposable time. Culture also plays a critical role in explaining cross-national variations in food choice. For instance, to take an extreme example, cross-national variations in the consumption of horsemeat owe little to variations in incomes and disposable time, but rather whether its consumption is culturally sanctioned. Sociologists and anthropologists seek to incorporate a wider set of factors into their explanations of food choice.

Food choice process model

Furst *et al*. (1996) developed the food choice process model and it is one of the most influential approaches to be based on grounded theory and derived from qualitative research. There are three main components of the model: the life course, influences and personal systems (Figure 4).

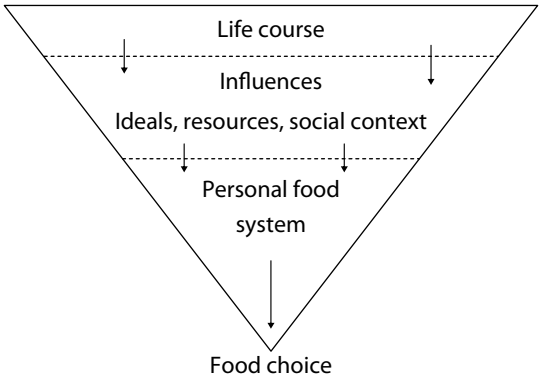

Figure 4. Food choice process model (adapted from Sobal et al*., 2006: 3).*

The life course refers to past and current eating experiences. Furst *et al.* (1996) argue that to understand current patterns of food consumption it is necessary to understand trajectories, defined as a 'person's persistent thoughts, feelings, strategies and action over the lifespan (Devine *et al.*, 1998). Furst *et al.* (1996) argue that trajectories develop in specific situational and historic contexts that become persistent and exhibit their own momentum and continuity. The family unit is seen as the most important situational and historic context, so that a person's upbringing will mould patterns of food consumption long after they have left the parental home. However, the authors are careful to avoid crude historical determinism – recognising that researchers should also capture transitions – shifts in a person's life that 'lead to changes or solidify the continuation of behaviours, including food choice patterns' (Sobal *et al.*, 2006: 4). For instance, illness may act as a critical transition, disturbing usual personal food systems (Falk *et al*., 2000).

In the model of Furst *et al.* (1996), influences refer to ideals, resources, social framework and the food context. Ideals incorporate symbolic meanings people associate with food, such as social status and whether a particular food is regarded as a 'proper' food. The authors note that some people are more 'food centered', deriving pleasure, safety and symbolic value from cooking, while others display low 'food salience':

> I don't make an issue out of having a sit down meal or whatever ... I don't think that you have to make like an all out ... effort to make dinner every day. It doesn't have to be like a main function of your life (Furst *et al*., 1996: 254).

Resources are classified as tangible (money, equipment and space) or intangible (culinary knowledge, skills and time). Both are regarded as important determining factors. The social framework captures the nature of interpersonal relationships, social roles and meaning. Families are regarded by Furst *et al.* (1996: 255) as the most important set of interpersonal relationships influencing food choice, with individuals 'enacting or being assigned particular household food roles'. These roles may conflict with individual preferences, as illustrated in one interview, where she indicated that she placed family needs above her:

> If it wasn't for them [the family] I probably wouldn't [cook], probably just have apples or something ... I'd probably just be eating one thing ... I love doing it [preparing food], but yeah, for them it's ... fun to do and I do it for them, but it's not a priority for me (Furst *et al*., 1996: 255-256).

The third component of the model, the personal food system, relates to mental processes whereby people translate influences on their food choices into how and what they eat in a specific context.

This consists of two main components: value negotiations, which involve evaluating the varying merits of different factors, and strategies. Furst *et al.* (1996) identify six main values pertinent to food choice: sensory perceptions, monetary considerations, convenience, health/nutrition, managing relationships and quality. Strategies capture well-established habits or rules, for example one woman's rule for buying yoghurt was:

> There's [a] certain brand of yogurt that my daughter likes ... I will automatically buy that brand. Because I know if I buy the other [cheaper] brand it will just sit in the refrigerator and rot (Furst *et al*., 1996: 260).

Devine *et al.* (1998) utilised the model of Furst *et al*. (1996) to explain certain patterns of fruit and vegetable consumption. It has also informed studies of the food choice of older consumers (Falk *et al.*, 1996) and newly married couples (Bove *et al.*, 2003).

The food choice process model incorporates a far wider set of factors to explain food choice than the economic households models and it is designed to be comprehensive (Sobal *et al.*, 2006). For instance, the prominence given to life histories is in contrast to the economic models of Becker (1965) and Bonke (1992), where past behaviour and personal health (illness) do not enter as explanatory variables. However, the model is based on a narrow data set – 29 interviews with adults drawn from New York State (USA). Each interview only lasted for 20 to 30 minutes. This appears too short to adequately capture an individual's life course, influences and personal food systems. While the model seeks to be universal, its validity in a cross-national setting has not been explicitly tested. Identifying the specific role played by each component of the model is difficult – as recognised by Sobal *et al.* (2006: 2) 'the components of the model ... are not mutually exclusive of each other because they overlap and interact'. Establishing causality is thus difficult.

Theory of reasoned action / theory of planned behaviour

The theory of reasoned action (TRA), developed by Ajzen and Fishbein (1980) is premised on the belief that the immediate predictor of behaviour is a behavioural intention. Behavioural intentions depend on a person's attitude toward that behaviour and the values of others (Figure 5). Attitudes capture beliefs about behavioural outcomes (behavioural beliefs) combined with an evaluation of

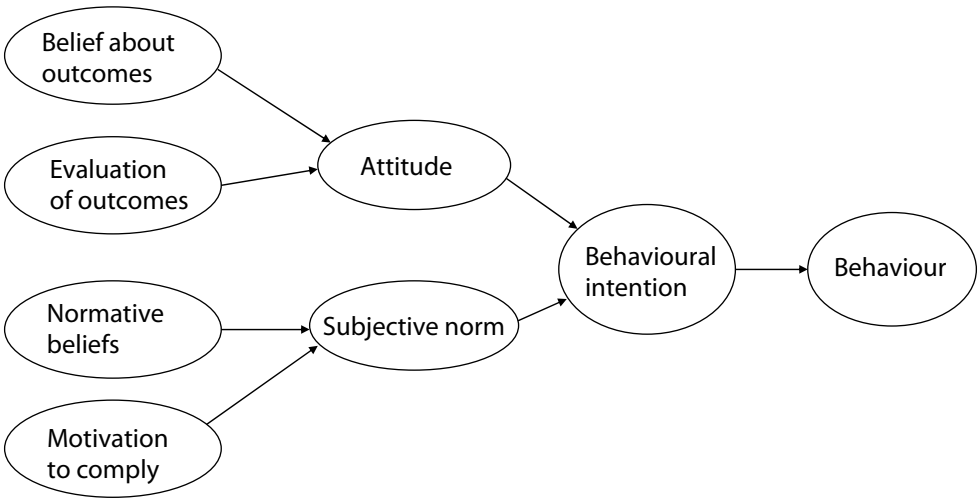

Figure 5. Theory of reasoned action (TRA) (adapted from Ajzen and Fishbein, 1980).

the outcomes of such behaviour (outcome evaluation). Subjective norms refer to received social pressures to behave in a certain way and motivation to comply with the wishes of others.

The TRA was not specifically designed to model food choice, but it has been used extensively for this purpose. For instance, McCarthy *et al.* (2003) use the TRA to model beef consumption in Ireland. They found that both attitudes and subjective norms to be important determinants of behavioural intentions and that behavioural intention correlated significantly with their behaviour measurement. Other studies, applying the TRA to food choice, have also found significant correlations between the main components of the model (Saunders and Rahilly, 1990).

However, the TRA was developed only to model purely volitional behaviour, in other words cases where successful performance of the behaviour required only the formation of an intention to perform that behaviour (Conner and Armitage, 2006). To address cases of incomplete volitional control, Ajzen (1988) developed the theory of planned behaviour (TPB). The TPB extends the TRA by incorporating an additional construct, perceived behavioural control, which is regarded as a determinant of both behavioural intensions and behaviour (Figure 6). 'Perceived behaviour control' incorporates both internal control factors (information, skills and abilities) and external control factors (dependence on others / situational factors). Therefore under the TPB, intentions, in turn, are influenced by three major factors:

- whether the person is in favour of doing the specific behaviour (attitude toward the behaviour);
- how much the person feels social pressure to do it (subjective norm);
- whether the person feels in control of the action in question or self-efficacy in relation to the behaviour (perceived behavioural control).

It should be noted that the TPB still represents a 'reasoned action' approach to consumer behaviour because it assumes that intentions and behaviour in this domain follow reasonably from the behavioural, normative, and control beliefs people hold about the behaviour. Although the beliefs people hold may be unfounded, inaccurate, or even irrational, the attitudes, subjective norms, and perceptions of behavioural control are thought to follow spontaneously and reasonably from these beliefs, produce a corresponding behavioural intention, and ultimately result in behaviour that is consistent with the overall tenor of the beliefs. So by this theory, as general rule, it is assumed that attitudes toward available options, which can be measured directly, are determinants of consumer decisions (Ajzen, 2008).

The TPB has become the most widely adopted theoretical framework for modelling food choice (Conner and Armitage, 2006). For instance, Cox *et al.* (1998) and Nguyen *et al.* (1996) employ the

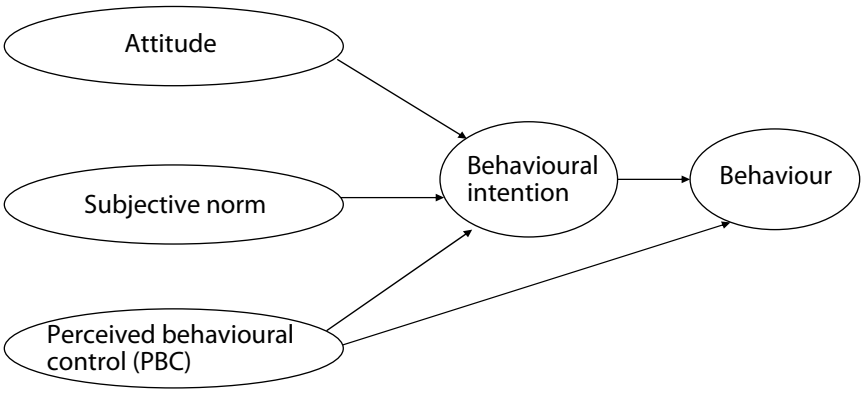

Figure 6. Theory of planned behaviour (TPB) (adapted from Ajzen, 1988).

TPB to explain variations in fruit and vegetable, and fat in consumption, respectively. The TPB in the Cox *et al.* (1998) study of fruit and vegetable consumption accounted for between 33 and 47% of the variation in behavioural intentions. Attitudes, subjective norms and PBC were all significant, with attitudes the most important predictor. Nguyen *et al.* (1996) also found all three components to be significant; with attitudes the most important factor in explaining intentions to eat fatty foods. Further studies (Povey *et al.*, 2000) on fruit and vegetable consumption have found a significant linkage between behavioural intentions and actual behaviour. However, the TPB model works best for behaviour that is very specifically defined and when there is a shorter time period between intention and behaviour. Behavioural intentions may be a poor predictor of behaviour in cases of addiction (e.g. intention to quit smoking).

To improve the proportion of variation explained in intentions and behaviour, several extensions to the TPB have been proposed. Two additional variables commonly included are self-identity and perceived need (Conner and Armitage, 2006). Self-identity refers to the relatively enduring characteristics that people ascribe to themselves (Sparks, 2000). In food choice, individuals may be more likely to eat healthily if they perceive themselves as 'health conscious' or eat environmentally friendly foods, such as organics, if they identify themselves as 'green consumers'. The latter notion was tested by Sparks and Shepherd (1992) who found that self identity did significantly contribute to explaining intentions to consume organic vegetables, in addition to other components of the TPB model. A meta-analysis by Conner and Armitage (2006) suggests, however, that self-identity's contribution to the explanation of variations in behavioural intentions may be rather limited, certainly accounting for less than the 'traditional' components of the TPB.

Perceived need represents a second modification to the TPB, incorporated by Paisley and Sparks (1998). The latter argue that while the TPB may capture attitudes it does not in itself assess whether individuals perceive a need for such behaviour. For example, an individual may regard a low fat diet in general to be positive but not perceive it to be necessary on a personal basis. Studies which have incorporated perceived need have found that it adds significantly to the prediction of behavioural intentions (Paisley and Sparks, 1998; Povey *et al.*, 2000).

Attitude – intention relationships are likely to be weaker where individuals possess attitudinal ambivalence – simultaneously holding both positive and negative attitudes toward an object. Regarding food choice, for instance an individual may hold both positive and negative attitudes to junk food, liking the taste but disliking the high fat content. Conner and Armitage (2006: 52) argue that attitudinal ambivalence is likely to moderate the relationship between attitudes and intention/behaviour 'such that stronger (i.e. less ambivalent) attitudes are more predictive'. Sparks *et al.* (2001) found some empirical support for this proposition in studies focusing on eating meat and chocolate.

While researchers agree on the importance of attitudes in shaping behaviour it is important to note that the model does not explain how attitudes are created or modified. The latter is particularly important for food agencies and commercial practitioners that wish to change behaviour. It may be that the formation of attitudes and their modification can only be explained in relation to the notions of the life course, trajectories and transitions, introduced by Furst *et al.* (1996). Incorporating this into TPB modelling would, however, require a very different research design.

In assuming that food choice relates to 'reasoned action', the TRA/TPB may struggle to explain impulse behaviour. Impulse purchases are very important in several food markets e.g. confectionery. One model which tries to pay more attention to impulse and unconscious buying is the 'Purchase cube' model of spontaneous purchase vs. planned purchase developed by Baumgartner (2002) (Figure 7). Using multidimensional scaling and cluster analysis he distinguished eight distinct forms of purchase behaviour. These eight purchase types are based on three underlying dimensions: thinking vs. feelings purchases (based on functional vs. psychosocial purchase motivation), low

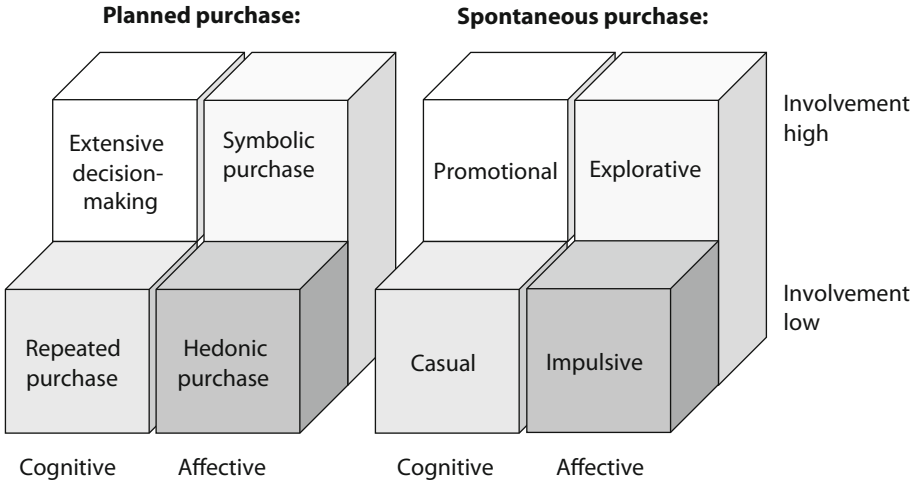

Figure 7. The purchase cube: three-dimensional typology of purchase behaviours (Baumgartner, 2002).

vs. high purchase involvement (based on the degree of care required for a purchase or the amount of effort expended on the purchase), and spontaneous vs. deliberate purchase behaviour (based on how much prior planning goes into the purchase and how much previous experience the consumer has with the purchase).

Conclusions regarding food choice models

This section reviews the literature on food choice which concerns the consumer food science literature, identifying three streams of research coalescing around the economic household model, food choice process model and applications of the TRA/TPB. These remain rather separate literature chapters with often little interaction between economists, sociologists and psychologists. This means that criticisms of one approach often remain unanswered and unaddressed by another.

From reviewing the models a number of conclusions can be drawn. First, explanations of cross-national variations in food choice cannot be solely reduced to differences in incomes. Culture plays an important part in explaining cross-national variations but researchers have often struggled to capture this in their models. Second, past behaviour remains a consistent predictor of current behaviour. This is captured by Furst *et al.* (1996) in their notion of the life course and trajectories. Studies by social psychologists have found 'past behaviour predicts subsequent behaviour, over and above the effects of TPB variables' (Conner and Armitage, 2006: 41). Given the strong linkage between past and current behaviour, studies of food choice should incorporate an historical dimension. Finally, while several studies applying the TPB to food choice indicate the significance of the main elements of the model and its overall validity, deep understanding requires also a consideration of how attitudes are generated and also altered.

Ostergaard and Jantzen (2001) note that food consumption research, and more largely, consumption studies mostly explored consumption within the framework of individual behaviour. They note that there has been a lack of consideration for the role played by groups or by the public sphere in looking at the formation of identity and consciousness of consumer preferences. They propose to shift the perspective by looking at consuming individuals more than at consumers, by giving greater attention to the meaning of their choices. Indeed, interactions between individuals and the society must be looked at in order to explain the evolution of markets.

Section 3. Marketing

Theoretical economic approaches of the consumer

In classical economics, perfect competition is the main paradigm. In this approach, a market is seen as a meeting between supply and demand with consumer sovereignty. Market equilibrium is reached under perfect information conditions on price, quality and quantity to both sides.

From the point of view of *Neoclassical Economics*, several authors have highlighted how market failure may arise from information asymmetry between the producer/seller and the consumer/buyer. Akerlof (1970) studied the link between quality and uncertainty. His approach to uncertainty, illustrated with the example of second hand cars, is that it may be inherent to the nature of the transaction itself. Asymmetry of information about products is essentially linked to:

- experience goods (Nelson, 1970), for which the quality, especially the sensory quality, can be assessed by the consumer only when he really consumes the product; and
- trust goods (Darby and Karni, 1973), sometimes known as credence goods, for which quality can never be assessed by the consumer either pre or post consumption (production methods or nutrition content for example).

Market failure may occur in the provision of such experience and trust goods because of the risk of deception with respect to quality, and the potential absence of palliative rules. In this case, competition may lead to good quality products being driven out of the market by bad ones. Consequently, the consumer may become trapped in a downward spiral of deception and continuously weakening quality. On the other hand, preferences may be less stable than it is often postulated in theoretical models of consumer decision-making. Recent analysis showed that the values of safety, nutrition, taste and price were among the most important to consumers (Lusk and Briggeman, 2009).

The potential for market failure means that the economics of food safety should be included as a relevant theoretical framework for contemporary food consumer behaviour analysis. Food safety includes answering the following questions: how farmers produce food (what chemicals they use when growing plants and how they feed their animals), how food is processed, how it is sold *and what sort of information is provided on the product labelling*. From the traditional point of view food labelling was assumed only as the means for providing information to the consumer. More recently it is conceptualised as a means of conveying information regarding all relevant product quality attributes. So labelling can inform consumer choice and in turn lead to public health benefits.

To conclude, the neoclassical view is that consumers make choices based on their preferences. A critical underlying assumption in this framework is that preferences are complete and stable. But choice may not be as stable as stated by this theory. People use trial-and-error learning to 'discover' preferences. More recently, they are affected by the lack of the relevant information for decision making (*Information economics*). Instead of preferences people are led by values as 'underlying preferences' defined over fundamental aspects of life (e.g. health, prestige, sensual pleasure and other). It is usual for consumers to demand information, which enables them to make informed choices. However, this demand for information differs strongly. We can consider for instance uninformed choice (low involvement, ignorance) and well informed choice (high involvement, engaged choice).

It is of importance to accept the fact that exploring the market situation is based on the overall idea that markets:

- consist of a variety of actors; and
- exist in a given environment.

Recently, the economists often suggest an institutional framework as the basis for the research of consumer behaviour (Institutional Economics – e.g. Heterodox Institutional Economics, New Institutional Economics, Lows and Economics, Behavioural Economics). To illustrate this: farmers are linked to processors, retailers and at the end to consumers (and *vice versa*). In order to remain licensed to operate (to survive) the environment should not be neglected and should be watched carefully. To deal with this we talk these days about concepts such as a 'license to produce' and about 'firms' social responsibility'. The goodness of fit between different segments in a supply chain concerning the adoption of socially responsible concepts is, for instance, analysed by Verhees *et al.* (2008). The role of different players at the market has to be analyzed in the context of understanding of contemporary food consumer behaviour. It includes consumers associations, producers, retailers (economic sector), regulatory institutions and governmental bodies in the area of public health, food systems, trade, innovations and technology, education and information.

Apart from analyzing consumer preferences and decision making, food consumer research focuses to great extent on studies of consumer perception, values and beliefs, attitudes, information processing and learning.

Food marketing and marketing management theories

Food Marketing is a sub-discipline of marketing. The concept of marketing as a systematic approach to analyse, understand and to act on markets, originated from US agri-food business in the 1920s. At that time, US agriculture witnessed a severe crisis that led to a significant number of farmers abandoning agriculture and leaving rural areas, foremost in the mid-west. Agricultural research institutes, analyzing the underlying reasons of the crisis, hit upon the crucial role of the relationship between farmers and their markets. Describing and de-composing the exchange-relationships led to the first elements of what later became 'marketing' as an entrepreneurial concept and a scientific discipline (Ritson, 1997: 11).

Though designed in an agricultural and food context, the high potential of the new concept was at first understood and integrated by other branches of industry and services, where the application of 'marketing' was a major factor for innovation and re-structuring from the late 1950s onwards. Paradoxically, the agri-food business and agriculture itself were among the last sectors to actively take up the ideas of marketing (Bartels, 1962).

The central idea of marketing as a theoretical concept tries to describe and to understand any enterprise from a point of view that is situated outside of the enterprise, in its (actual or potential) market. Any strategic or operational decision-making and action is based on the analysis of information about the enterprise's market (Kotler, 1992; Becker, 1998).

The main stages of marketing work are shown in Figure 8:
- strategic marketing: analysis of market and environment, fixation of objectives and strategies;
- operational marketing: the realisation of strategies by means of application of the four policies-price, product, distribution and public relations/communication/promotion.

It is at the stage of analysis of the enterprise and its environment where market research and consumer research interact.

In management sciences, strategy is the result of the ability to take decisions in relation to the stakes of the context, in coherence with a vision of the goals to be reached. The strategic capacity is related to the classical axes of the marketing management: product, price, place and promotion (Kotler, 1967).

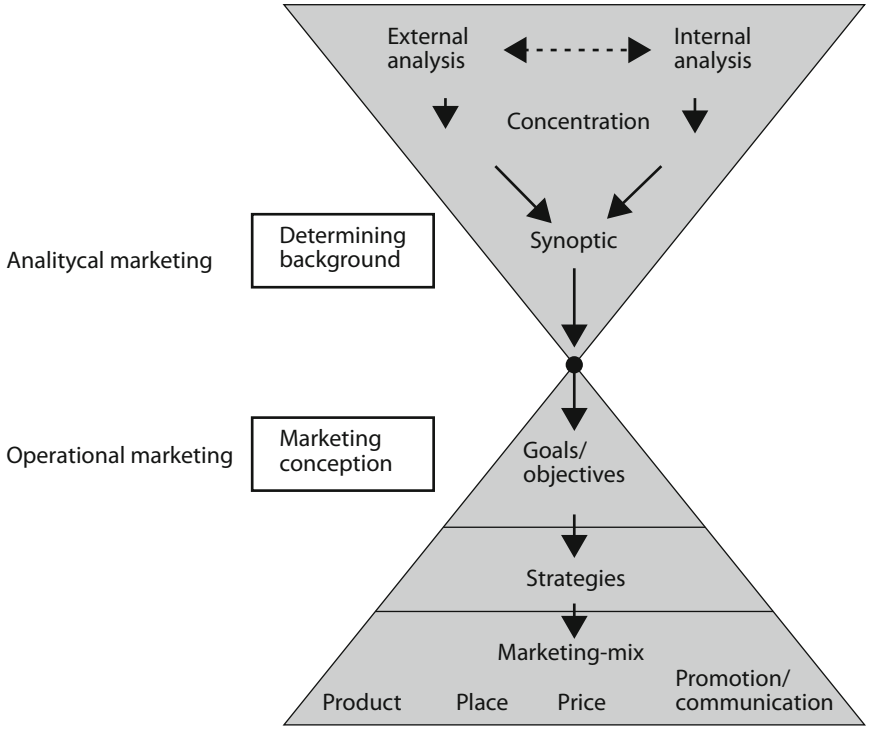

Figure 8. The different levels of marketing (Becker, 1998: 4; Schaer, 2001: 53).

Product differentiation is a classical strategy in the economic value creation process, well-known in marketing theories (Porter, 1985), which main interest is the price setting at a market equilibrium moved from the initial market to a niche market because the product has a specific and unique quality which makes it different from the standard product (Chamberlin, 1933).

At a theoretical level, the social construction of economic values linked to qualities (physical characteristics and linked to the processes) which can differentiate the product is to be distinguished from the value added itself. Making a distinction between these two notions leads to a better understanding of the effect of product differentiation.

- Value added is a concept developed in macro-economy. It refers to the additional value of a commodity over the cost of commodities used to produce it from the previous stage of production. The value added corresponds to the remuneration of the factors of production, which are the work, the capital and the risks.
- Economic value is a broader concept. It is obtained at the moment of the transaction, and it remunerates beyond the factors of the physical production also some additional characteristics, for example the image or reputation acquired in the course of time. The social construction of the qualities and the intellectual property rights are the two main facilitators of the generation of economic values at producer level. Without intellectual property rights, efforts of the producers/ sellers are reduced to null through similar or even sometimes deceptive assertions (parasitism) of competitors willing to benefit without due cause from the qualitative efforts made.

Operational food marketing: the basis for market research

The basis for exploring the market situation for selected products is the idea that markets consist of a variety of actors and exist in a given environment. To illustrate this: farmers are linked to processors,

retailers and in the end consumers (and *vice versa*). In order to remain licensed to operate (to survive) the environment should not be neglected and should be watched carefully.

Shopping behaviour of consumers and their habits depend on numerous factors: degree of development of the country, presence of various sales chains, but also culture and tradition of the country and consumers. Type of shopping behaviour varies from country to country, but also 'levelling' of consumer characteristics is noticeable. Globalization affects presence of global brands, presence of global sales chains, as well as global campaigns (less and less adjusted to local consumers). On a personal level, shopping habits are determined by demographic variables: age, education, income, gender, place of residence. All these categories also determine lifestyle of an individual, so type of shopping behaviour is an important characteristic of life style.

The types of locations where consumers purchase food have changed over the past years following changes in lifestyle (e.g. working habits) and in what is on offer from the retail sector. The rapid increase of the number of super- and hypermarkets resulted in a steady growth of their market share. Preferences for supermarkets are stronger amongst younger people and people with higher education. The second most popular type of store is the mini-market; however their share is slightly declining. Large retail establishments figure more and more prominently due to changes in the way of living and new customer needs. The latest development trend is moving in the direction of construction of modern shopping centres that provide different shopping services and entertainment in one place. They recreate the street ambiance with its bars, restaurants, kiosk and children playground and become privileged places for socialising.

Market and consumption structures in Western Balkan countries

The food habits have changed over the last several years, and also the consumers in Western Balkan Countries (WBCs) have become more and more sophisticated and demanding. Despite the increase of production, the domestic food industry is still incapable of meeting the market demand, especially when it comes to innovative or well-processed products.

In economics, market structure describes the state of a market with respect to competition. The elements of market structure include the number and size distribution of firms, entry conditions, and the extent of differentiation. In the WBCs, the current situation is still much influenced by the socialist legacy. In the socialist era, the supply chains relied mostly on state companies that produced and processed food (Agrokombinats) and retail chains that distributed it. Marginal quantities were produced by small-scale farmers and sold at green markets, but generally speaking the supply chains were highly vertically integrated. The reforms implemented since the mid-nineties, have resulted in the privatisation of these structures and in the opening of the market to other companies (foreign and domestic).

Few domestic companies have been able to acquire the former state retail networks that allow them to have national coverage, and kombinats for fresh and processed food production. In this way some big conglomerates, for example Delta Holding in Serbia or Agrokor in Croatia, have somehow reproduced at national level the vertically integrated models that existed in the former Yugoslavia. After consolidating their position in their home country, these giants in Balkan terms, have now regional strategies developing retail networks in Montenegro and Bosnia-Herzegovina for Delta Holding, and in Serbia, Macedonia and Bosnia-Herzegovina for Agrokor. Other examples of such vertically integrated supply chains exist, for instance for meat products (Ménez and Malcolm, 2006).

Other retail chains appeared since the late nineties. Among them is the Slovenian Mercator, which has opened supermarkets and hypermarkets in all WBCs. Others – German, Greek, British, Italian, Austrian, French and Turkish companies – have so far established operations only in some of the countries, but often fail to scale-up their operation after opening few supermarkets in the main urban centres.

Excessive vertical integration and the dominant position of some groups in certain countries result in profit margins that are almost three times international norms.

The retail network in Croatia, Serbia and Bosnia-Herzegovina and other WBCs is still well developed, being dominated by small shops (under 100 m^2). The largest share in the retail market in WBC is still held by small shops, that belong to the network of the big retailers, or that are managed by individual entrepreneurs. In addition, green markets are still widespread in the WBCs, with exception of Slovenia. In the other WBCs, green markets are present in each town and in city districts.

Section 4. Methods: the choice to be made

The objective of this section is to describe briefly a series of methods which are available for application in the field of food consumer science. A brief description and the main literature references will be given. The goal is to improve knowledge of consumer behaviour, preferences, needs and expectations by analyses. For that, both qualitative and quantitative methods will be discussed.

Qualitative research is a set of research techniques used in marketing and the social sciences, in which data are obtained from a relatively small group of respondents. The idea is that we do not look for representative results with regard to a population, but with regard to a set of ideas. Qualitative research allows an in-depth approach to the topic of interest.

One major feature of qualitative data is that they focus on naturally occurring events, having a strong handle on 'real life'. Beyond that, qualitative tools may give important and interesting insights of underlying representations that could for example explain consumers' behaviour. Qualitative studies also aim to describe a pattern of relationships, which can be done only with a set of analytical categories. Starting with the categories (deductive) or getting to them (inductive) are both legitimate (Miles and Huberman, 1994). In some cases, a statistical analysis can be done on *verbatim* transcripts or other outcomes, not on the participants.

Quantitative research is primarily number based and a deductive process used to test pre-specified concepts, constructs, and hypotheses that make up a theory. It refers to surveys, conducted with a large sample to produce statistically reliable results which can be used to project outcomes to a general conclusion at the population level. It is used to determine issues such as customer needs, performance and satisfaction ratings and product preferences. Generally, this type of research is conducted through a structured questionnaire with 'closed questions'.

On a technical point of view, these approaches are very different, but they are less and less considered as mutually exclusive. Very frequently a research plan will combine a qualitative phase and a quantitative one (Delbes, 1983). The qualitative phase is very often necessary to build the questionnaire for the quantitative survey. This preliminary task also helps to interpret and explain quantitative results. On the other hand, quantitative surveys give precise quantification of answers, according to the different categories of population that cannot be reached with qualitative tools.

The Focus Balkans project involved both qualitative and quantitative methodology to analyse consumer behaviour. Such a combination ensured that survey work was informed by qualitative methods. Having in mind the general lack of primary data and primary data analysis in Balkan countries, the consumer studies within FOCUS Balkans will orientate towards use of qualitative techniques for consumer research, validated by a quantitative survey. Therefore, more flexible and less precise methods – such as focus groups and/or individual interviews – should generally be used before the less flexible but more precise methods such as surveys.

Focus groups

In the literature of the relevant disciplines (social sciences, market sciences and marketing) 'focus groups', 'group interviews' and 'group discussions' are neither systematically differentiated nor homogeneously defined. However, in spite of lacking taxonomy, a focus group can be characterized as 'a moderated discussion of a group of individuals on a given subject'.

Focus groups are characterised by the two core elements. The subject matter is being introduced into the group by the researcher and the generated data are a result of the interaction within the group. It is only the combination of the two criteria which discerns focus groups as a self content research method between the two basic qualitative data gathering methods: open interview for individuals and the participating observation of a group, without researcher input (Burke and Stets, 2009).

Focus Groups are often used during the explorative stage within the research process, for which they are especially suited for the generation of hypotheses. It could be noticed that recently they have been more and more used as an independent research method. However, it is important to underline that, without further quantitative test of the results, representativeness cannot be reached.

Focus groups produce individual data and group generated data, which can be analysed on different levels:

- Rational level: where the group (participants and their interaction) are in the center of the consideration. Analysis based on small group interaction, research on opinion and attitudes, interaction analysis.
- Content level: when distinct statements are the foreground, analysis based on conversation analysis, content analysis.

The interpretation of focus groups is complex because of the heterogeneity of the generated data. It has to be pointed out that up until the present there are no entirely satisfactory protocols and standardised analysis protocol for the Focus Group approach. The most common analysis method is content analysis (Mayring, 2000).

In depth interviews

This form of research was pioneered by Ernest Dichter (in Solomon *et al*., 2006), a psychoanalyst and marketing expert who is often considered to be the 'father' of motivational research. Dichter pioneered the application of Freudian psychoanalytic concepts and techniques to business – in particular to the study of consumer behaviour in the marketplace.

An in-depth interview is a qualitative research technique centred on person to person in-depth discussion. It leads to increased insight into peoples' thoughts, feelings and behaviour on research questions. In marketing research, the areas in which in-depth interviews can be used are numerous and vary from:

- understanding consumers' attitude and behaviour, i.e. why people behave in certain way;
- generating ideas or hypotheses that can later be tested by quantitative surveys;
- obtaining a greater depth of information on a topic of interest as a supplement to data obtained from other methods (structured questionnaire for example).

The interview is conducted through a structured questionnaire, in order to cover all aspects of the topic of interest. To collect valuable and interesting data, it is very important that the questionnaire includes open questions. It is also very important that the interviewer allows interviewees express themselves. Frequently, new issues (not foreseen by the researcher) emerge from these structured but open discussions.

Interviews may incorporate projective techniques, which can be classified as an unstructured indirect form of questioning that encourages respondents to project their underlying motivations, beliefs, attitudes or feelings regarding the issues of concern. They are used to uncover feelings, beliefs, attitudes and motivations which many consumers find difficult to articulate (Webb, 1992: 125-126). Projective techniques help the researcher to enter the private worlds of subjects to uncover their inner perspectives in a way they feel comfortable with (Gordon and Langmaid, 1998: 90; Loudon and Delta Bitta, 1993: 619). Those most often used include associations to presented stimuli, constructions of stories or pictures, completion of sentences or arguments, expressive techniques of role play, drawing, painting, and choice ordering technique.

Delphi methodology

Since its development by the Rand Corporation to improve (military) technology forecasting in the 1960s, Delphi studies have been applied widely. The approach involves successive questionnaires to an expert panel, using feedback to refine an informed perspective on complex or uncertain issues. Epistemologically, Delphi studies are not merely deductive but also disclosive (Jones *et al*., 1992), and allow fragmentary perspectives to coalesce into a larger collective understanding. The best definition of the approach is found in the seminal work of Linstone and Turoff (1975: 3):

> Delphi may be characterised as a method for structuring a group communication process in such a way that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem.

Recent use of this method has been widespread, especially in health and education topics (for examples, see Tigelaar *et al.* (2004); Powell (2003); Leach *et al.* (2001) and Lafourcade and Chapuy (2000)). A topical review of this methodology and critiques on Delphi studies are provided by Mullen (2000). A small number of studies have been carried out to forecast food market development, but as Critcher and Gladstone (1998) note, its use in applied social science is not widespread, perhaps because it is less well known among researchers than other techniques. While many Delphi studies are focused on purely forecasting issues, a 'policy Delphi' variant (Linestone and Turoff, 1975) aims to provide a forum for idea generation, commentary and evaluation; facets of both forecasting and idea-generation were used in this study of Linestone and Turoff (1975).

The objective of most Delphi applications is the reliable and creative exploration of ideas or the production of suitable information for decision making. The Delphi Method is based on a structured process for collecting and distilling knowledge from a group of experts by means of a series of questionnaires interspersed with controlled opinion feedback (Adler and Ziglio, 1996). Baldwin (1975) asserts that lacking full scientific knowledge, decision-makers have to rely on their own intuition or on expert opinion. The Delphi method has been widely used to generate forecasts in technology, education and other fields (Cornish, 1977).

The Delphi method is an exercise in group communication among a panel of geographically dispersed experts (Adler and Ziglio, 1996). The technique allows experts to deal systematically with a complex problem or task. The essence of the technique is fairly straight forward: it comprises a series of questionnaires sent either by mail or via computerized systems, to a pre-selected group of experts. It can be applied:

- in other ways: by telephone, face to face or by mixtures of different survey methods;
- it can also be applied on small groups;
- the main thing is the re-iteration of results during several stages of survey (feeding them back into the group or part of the group for further development and validation).

The number of rounds and the size of the group can vary. These questionnaires are designed to elicit and develop individual responses to the problems posed and to enable the experts to refine their views as the group's work progresses in accordance with the assigned task. The main point behind the Delphi method is to overcome the disadvantages of conventional committee action. According to Fowles (1978), anonymity, controlled feedback, and statistical response characterize Delphi. A statistical response is not always necessary; it can be about qualitative results as well. The group interaction in Delphi is anonymous, in the sense that comments, forecasts, and the like are not identified as to their originator but are presented to the group in such a way as to suppress any identification.

In the original Delphi process, the key elements were:
- structuring of information flow;
- feedback to the participants; and
- anonymity for the participants.

Clearly, these characteristics may offer distinct advantages over the conventional face-to-face conference as a communication tool. The interactions among panel members are controlled by a panel director or monitor who filters out material not related to the purpose of the group (Martino, 1978). The usual problems of group dynamics are in this way reduced.

The Delphi method has got criticism as well as support. The most extensive critique of the Delphi method was made by Sackman (1975) who criticizes it as being unscientific, and Armstrong (1978) who has written critically of its accuracy.

In general, the Delphi method is useful in answering one, specific, single-dimension question. There is less support for its use to determine complex forecasts concerning multiple factors. Such complex model building is more appropriate for quantitative models with Delphi results serving as inputs (Gatewood and Gatewood, 1983). This point is supported by Gordon and Hayward (1968) who claim that the Delphi method, based on the collation of expert judgement, suffers from the possibility that reactions between forecasted items may not be fully considered. The need for the cross impact matrix method of forecasting integrated with the Delphi method is pointed out by many researchers (Gordon and Hayward, 1968; Gatewood and Gatewood, 1983; Adler and Ziglio, 1996). An improvement in forecasting reliability over the Delphi method was thought to be attainable by taking into consideration the possibility that the occurrence of one event may cause an increase or decrease in the probability of occurrence of other events included in the survey (Helmer, 1977). Therefore, cross impact analysis has developed as an extension of Delphi techniques.

Cluster analysis

People with similar attributes tend to display similar patterns in various ways. This fact is particularly important in product development, customer relationship management, marketing, communication and risk management. For example, people with certain life-styles tend to buy certain types of products. Cluster analysis is a collection of statistical methods, which identifies groups of samples that behave similarly or show similar characteristics. In common language it is also called look-a-like groups.

Cluster analysis relies on distance measurements to classify data points into groups. In short, data observations close together should fall into the same cluster, while those far apart should be in different groups. There are various techniques by which the distance between two or more data points may be measured. Cluster analysis helps in reducing the complexity on the level of cases: out of hundreds or thousands of cases, you can find a reduced number of groups or clusters.

Often used in market research studies, cluster analysis is similar to a segmentation method, that identifies groups of entities or statistical samples (consumers/customers, markets, organizations) that share certain common characteristics such as attitudes, purchase propensities, media habits and lifestyle.

Conjoint analysis

Conjoint analysis is often used to study the factors that influence consumers' purchasing decisions. Product attributes such as price, colour, ingredients, guarantee, environmental impact, predicted reliability, point of sale, presentation and so on. Consumers typically do not have the option of buying the product that is best in every attribute, particularly when one of those attributes is price. Consumers are forced to make trade-offs as they decide which products to purchase. This method allows consumer preferences for a product or service, to be broken down into trade-offs among its individual attributes, without separating those attributes from the context in which overall judgments are made.

By using a conjoint study, researchers could gain a better understanding of the real value consumers attach to certain attributes when making purchasing decisions in a retail situation. The concept of conjoint analysis is described by Hair *et al*. (1998: 392) as follows: 'Conjoint analysis is a multivariate technique used specifically to understand how respondents develop preferences for products or services. It is based on the simple premise that consumers evaluate the value of a product or service by combining the separate amounts of value provided by each attribute'. Sudman and Blair (1998: 229-230) warn that it is not a data analysis procedure like factor analysis or cluster analysis. It must be regarded as a type of 'thought experiment' designed to show how various elements of products or services (price, brand, style) predict customer preferences for a product or service. Kotler (2000: 339) defines conjoint analysis as 'a method for deriving the utility values that consumers attach to varying levels of a product's attributes'. Churchill and Iacobussy (2002: 748) refer to conjoint analysis as 'conjoint measurement, which relies on the ability of respondents to make judgments about stimuli'.

Conjoint analysis is a popular marketing research technique. It is used in designing new products, changing or repositioning existing products, evaluating the weight of labels or brands, evaluating the effects of price on purchase intent, and simulating market share. It is used for optimizing product configurations, studying price elasticity of demand, simulating market response to new or modified offerings, and diagnosing competitive strengths and weaknesses.

The value of conjoint analysis lies in the fact that it estimates how much each of these attributes is valued, and as Churchill and Iacobussy (2002: 748) state 'the word *conjoint ("CONsider JOINTly")* has to do with the notion that the relative values of things considered jointly can be measured when they might not be measurable if taken one at a time'.

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Part 2.
Country studies

Market opportunities for sustainable foods: an investigation of the different roles of consumers and retailers, catering companies and brand manufacturers

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Abstract

Sustainability is becoming a permanent feature of our food system, and as such, has received increased attention from consumers, firms and governments. This current study, which is based on a large project funded by the Dutch government called 'Food Balance', shows how consumers, representing the demand side, and retailers, caterers and brand manufacturers, representing the supply side, think and act with regard to sustainability. More specifically, this paper focuses on both determinants of sustainable food purchasing behaviour and on the strategies and actions of retailers offering those sustainable products to the consumers. The consumer study shows that, although Dutch consumers find sustainability important, their current habits prevent them from choosing to buy more sustainable food products. More importantly, the current social and physical environments appear to be not stimulating enough to induce consumers to change these habits. The results of the study among suppliers showed that retailers, out-of-home food providers and food manufacturers acknowledge that they have an important role to play in supplying more sustainable food products. Although momentum seems to be growing toward sustainability in the food supply chain, this momentum is not translating into concrete activities. The actions of the companies do not fit consumer demand and are often focussed on internal sustainability programmes, such as energy saving, instead of sustainable procurement. Firms can do more to market sustainable products and to incorporate sustainability into new business models. These firms should play a much more pro-active role in making the social and physical environment more stimulating to make the purchase of sustainable goods easy and normal.

Keywords: sustainability, food, consumer, retail, catering

Introduction

Within the food production system, increased attention is given by consumers, firms and governments to sustainability (Maloni and Brown, 2005). These groups feel the urgency to preserve production, distribution and consumption activities in our economy from environmental, economic and social standpoints (Brown and Dacin, 1997; Dyllick and Hockerts, 2002; Kleindorfer *et al.*, 2005; Sen and Bhattacharya, 2001). Consumers have become much more aware of the environmental and ethical consequences of their behaviour (Carrigan *et al.*, 2004, 2010; Shaw *et al.*, 2006; Vermeir and Verbeke, 2006; Zimmer *et al.*, 1994). Similarly, organisations are increasingly focussing on market-based sustainability by integrating the role of customer and stakeholder opinions regarding sustainability issues into their marketing strategies. These developments have also prompted marketing scholars to pay more attention to the topic of sustainability, and subsequently an increased number of studies related to the marketing of sustainable products have emerged (Collins *et al.*, 2007; Connelly *et al.*, 2011; Hult, 2011; Jones *et al.*, 2008). However, despite an increase in attention, the current market share of sustainable food products remains low. For organic food, market shares are growing but are still between 0 and 7% worldwide (Willer and Kilcher, 2010). Market shares for Fair Trade food are even lower than for organic food (FFT, 2008). In short, both the consumers and suppliers (i.e. supermarkets and brand manufacturers) of these products could seemingly greatly improve their efforts to increase the market shares of sustainable products.

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The present study shows how consumers, representing the demand side, and retailers, caterers and brand manufacturers, representing the supply side, think and act with regard to sustainability. More specifically, this study focuses on both determinants of sustainable food purchasing behaviour and on the strategies and actions of the retailers offering those sustainable products to the consumers. By doing so, this study aims to obtain more insight into the actual interface between these groups.

This study is based on the 'Food Balance'. The 'Food Balance' is a large project for the Dutch government that aims to 'develop a set of instruments that can be used to measure improvements in the sustainability of the food system and the values consumers expect from their food on a regular basis.' The 'Food Balance' project is, in part, an effort to develop an appropriate system of sustainability measures in the following broad areas:

- the environment;
- fair trade;
- food waste;
- animal welfare; and
- health.

The project is designed to identify reliable measures of sustainability and the possibility for adjusting policies to promote greater sustainability.

We will first present the main outcomes of the consumer study, followed by the results of the study among suppliers. This paper ends with some overall conclusions.

Consumer study

The consumer study consisted of an online survey among a representative sample of the Dutch population (n=3,700). To obtain measures for sustainable consumption behaviour, a pilot study was conducted among 1000 Dutch consumers. This pilot study was used to obtain consumers' free associations with different types of (sustainability) behaviours (i.e. health, environment, etc.). For example, for healthy food products, the most-mentioned product categories were fruits and vegetables, whereas the respondents most often mentioned organic foods when thinking about environmentally friendly food products. The pilot study resulted in the incorporation of four types of (un)healthy and sustainable behaviours within the main study, namely, fruit consumption, snack consumption, fair-trade product consumption and organic food consumption. Respondents were asked about each of these four types in regards to:

- their actual behaviour;
- their buying intentions; and
- their attitudes towards the products that are subject to these behaviours.

Because food choices are affected by different choice motives (Lindeman and Vääänänen, 2000; Steptoe *et al.*, 1995), we asked the respondents to rate 12 different food choice motives on a scale from 1 (not important at all) to 7 (very important). Moreover, the respondents also had to rank these 12 motives from most important to least important. Four motives were selected because they can be regarded as part of sustainability (i.e. environmentally friendly, animal friendly, honestly produced and traditional), whereas the other motives were selected based on the literature (i.e. good for health, safe, convenient, affordable, tasty, well known to me, feel good with, and appearance) (Lusk and Briggeman, 2009; Steptoe *et al.*, 1995).

In addition to the food choice motives, we included several personal characteristics that are expected to influence sustainable behaviour. Based on insights from psychology, we distinguished between conscious factors, such as the consumers' attitudes and intentions (Ajzen, 1991; Ajzen and Fishbein, 1977), and more subconscious factors, such as the consumers' habitual behaviours (Ouellette and

Wood, 1998). In addition, this study included factors that are concerned with the social and physical environment of consumers, such as group norms (Nolan *et al.*, 2008; Parks *et al.*, 2001), peer pressure (Cialdini and Goldstein, 2004), social identities (Hogg and Terry, 2000; Tajfel, 1978) and the availability of (sustainable) food products (Cheadle *et al.*, 1991). Finally, socio-economic status factors (e.g. age, gender, education and income) were also included in the study.

Sustainability not decisive in product choice

Based on the importance scores for the food choice motives (on a scale from 1 to 7), the sustainable motives can be regarded as important (all scores above the midpoint of the scale). However, the results of the ranking show that most consumers seem to prefer 'ego' over 'eco'. Health, affordability, taste and safety were the most important motivations in purchasing food products. Concerning the values of sustainability, honestly produced and animal friendly appeared to be the most important motivations, whereas only 8% and 11% of the respondents placed 'traditional' and 'environmentally friendly', respectively, within the top 3 of their most important food choice motives. Figure 1 provides an overview of the ranking of food choice motivations for Dutch consumers.

Although consumers in general have positive attitudes toward sustainable products, they are not actually inclined to buy these products. In agreement with the ranking of the motivations of food choice, consumers are more willing to buy healthy food products than environmentally friendly or fair-trade products. Figure 2 depicts the attitudes towards (un)healthy and sustainable products and the intention of consumers to buy these products.

Habits and the social and physical environments are main predictors

When looking at the personal characteristics that determine attitudes and buying intention, we found that habit is the main reason why positive attitudes do not always lead to buying intention. Habitual behaviour appears to have the most influence on the (un)healthy and sustainable behaviour of consumers.

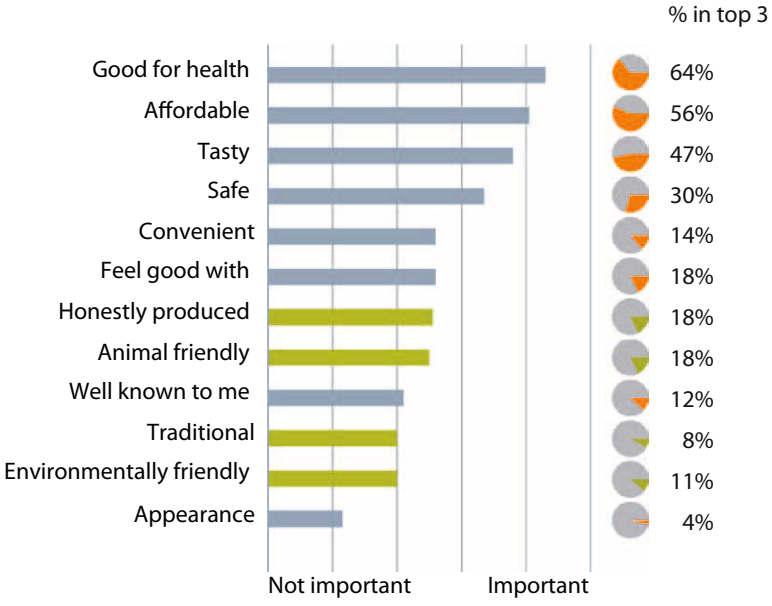

Figure 1. Ranking of food choice motives for Dutch consumers (n=3,700).

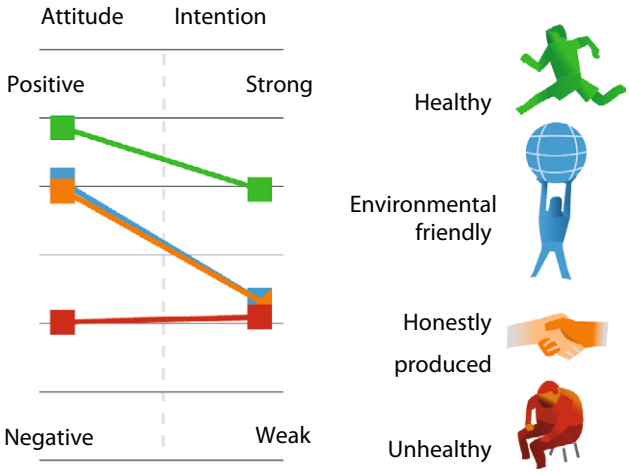

Figure 2. Attitudes and consumer willingness to buy (un)healthy and sustainable products.

Furthermore, the consumers' social environment (e.g. peer pressure and group norms) also has a significant effect on their behaviour. However, at present, Dutch consumers appear to experience only limited social pressure to choose environmentally friendly and honestly produced food products. Furthermore, these consumers do not consider themselves as 'typical' environmentally friendly or honest consumers (i.e. identification with these consumer groups is generally low), which tends to be another precondition to behaving in a sustainable manner.

Concerning the physical shopping environment, consumers assess the availability of (un)healthy products as being much higher than the availability of environmentally friendly and honestly produced food. Moreover, they experience little stimulus from food suppliers to make sustainable food choices. Figure 3 shows the consumers' perceptions of the social and physical environment for (un)healthy and sustainable foods.

Conclusions on consumers

Based on the results of the consumer study, we may conclude that, although Dutch consumers find sustainability important, their current habits prevent them from choosing to buy more sustainable food products. More importantly, the current social and physical environments do not appear to be stimulating enough for the consumers to change these habits. This brings us to the parties who are the gatekeepers to the consumers and partly responsible for creating such stimulating environments, i.e. the suppliers.

Supplier study

Retailers, out-of-home food providers and the food industry play important roles in encouraging sustainable food choices among consumers. Due to their market position and frequent direct-contact opportunities, supermarkets are appropriate venues to entice consumers to buy sustainable foods. Our study examines the extent to which suppliers of food in the Netherlands are perceived to have embedded sustainability into their marketing strategies and taken sustainable operational measures on the store floor. First, we conducted semi-structured qualitative interviews with chief executive officers (CEOs) in retail (n=8), catering (n=13) and brand manufacturing (n=7) businesses. Next, we conducted an online panel study among the managers and employees of these companies (n=200). All of the participants completed a self-administered questionnaire on the concrete sustainability initiatives, the embedment of sustainability in the organisation and the influence of stakeholders.

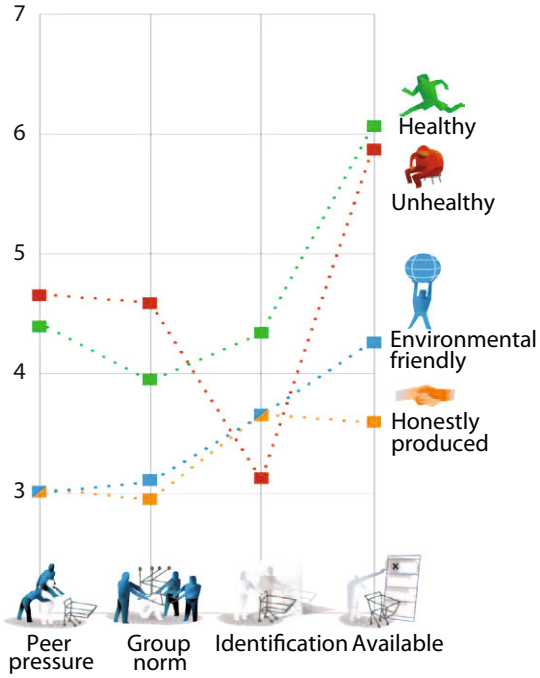

Figure 3. Consumer perceptions of the social and physical environment. Numbers on the Y-axis reflect scores of the different variables measured on a scale from 1 to 7.

Results of the qualitative study among Dutch CEOs

The results of the qualitative study show that sustainability is on the agenda of Dutch food companies and is not expected to disappear in the immediate future. All companies indicate that they will take major steps within the next 5 years. However, more consensus is needed on the definition of sustainability. Some interviewees indicated that sustainability is only embedded at the management level of the organisation, for example, as part of the mission or vision of the organisation, whereas others indicated that sustainability is already part of their annual report or is monitored in other periodical reports. A small group revealed that their organisations try to integrate sustainable practices into daily operations. However, this group also stated that most environmentally conscious measures are taken in the back office rather than the front office. Moreover, supplier sustainability appears to be mainly driven by the retail market. For example, most of the supermarket managers took concrete measures on the shop floors.

Results of the quantitative study

The following figures show the results with regard to the concrete sustainability initiatives of the retailers, caterers and brand manufacturers, the embedment of sustainability in their organisations and the influence of stakeholders. First, Figure 4 shows the sustainability measures taken by the organisations. Most activities appear to focus on the back office (e.g. energy-saving programs) rather than the front office. Actions with regard to food waste and animal welfare are least incorporated into the sustainability policies of the companies.

Figure 5 shows the embedment of sustainability on a strategic level. The results show that sustainability is included in these companies' corporate mission statements but to a lesser extent translated into

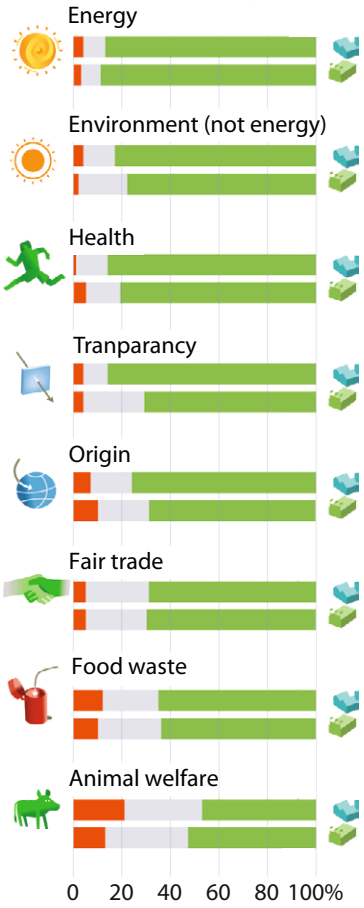

Figure 4. Sustainability measures taken by Dutch food suppliers. On the bars, the red gray area indicates that a company does not take any measure in relation to the mentioned sustainability aspects, the grey area indicates that average measures are taken in relation to a certain sustainability aspect, whereas the red area indicates that many measures are taken in relation to a certain sustainability aspect. The upper bars with the factory sign indicate the scores with regard to the brand manufacturers, whereas the lower bars marked with the store sign indicate the scores with regard to the retailers.

concrete actions, such as being part of the external communications (e.g. sustainability report) or periodically monitored (e.g. being part of appraisals with employees).

Although the companies reported that they were not afraid of losing customers because of offering more sustainable products, these companies also reported that they feared the risk of damage to their reputation when communicating about their sustainability. Finally, Figure 6 illustrates how the stakeholders affect the sustainability policy of the companies. The results indicate that food suppliers are mainly influenced by their customers, by society and by compliance with laws and regulations.

Conclusions on suppliers

The results showed that retailers, out-of-home food providers and food manufacturers acknowledge that they have an important role to play in supplying more sustainable food products. Some momentum appears to be growing toward sustainability in the food supply chain, as indicated by the fact that

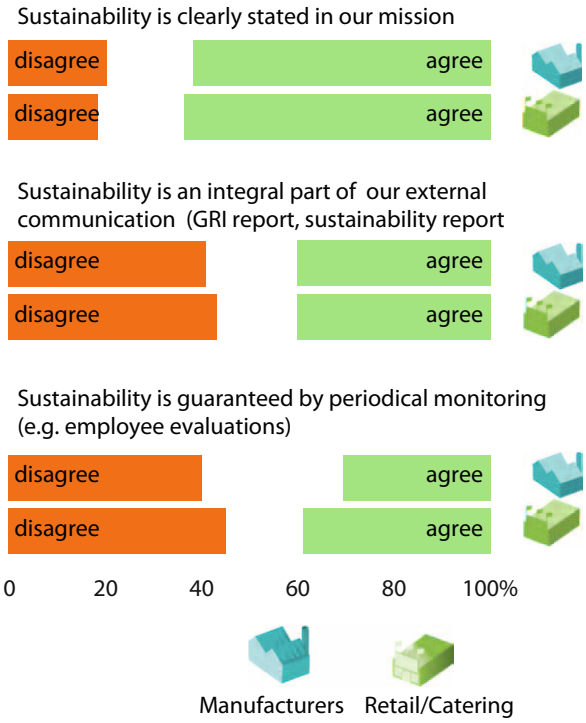

Figure 5. Embedment of sustainability within the organisation.

sustainability is on the agenda for CEOs. However, this momentum is not translated into concrete activities. Most activities focus on the back office (e.g. energy-saving programs) rather than the front office. The corporate sustainability strategies of food suppliers seem to follow the principles of license to sell (customers), license to operate (society) and license to produce (laws and regulations).

Overall conclusions

Consumer awareness of sustainable food products has increased in recent decades. The current study shows that although animal welfare and the environment are relevant to consumers, 'ego' appears to remain more prevalent than 'eco' in their choices and actions. The characteristics that still determine product choices are mainly price, taste, convenience, healthiness and safety. Notice that animal friendly products are one of the most appealing aspects of sustainable products for consumers, while companies take the fewest actions on this aspect of sustainability. Company actions do not appear to fit consumer demand. Instead, the company actions are often focussed on internal sustainability programmes, such as energy saving, instead of sustainable procurement. Moreover, the fact that sustainability is included in the companies' mission statements but often is not translated into concrete actions seems to contrast with the fact that most of the informants of the surveyed companies reported that sustainable initiatives should start with the companies rather than with the consumers.

Habits are by far the most important determinant of the purchase of sustainable and (un)healthy food products by consumers. The current social and physical environments do not stimulate consumers enough to change these habits and affect consumer buying decisions toward more sustainable food choices. Food suppliers could play a much more pro-active role in making the social and physical environment more stimulating to make the sustainable purchase the easy and normal purchase.

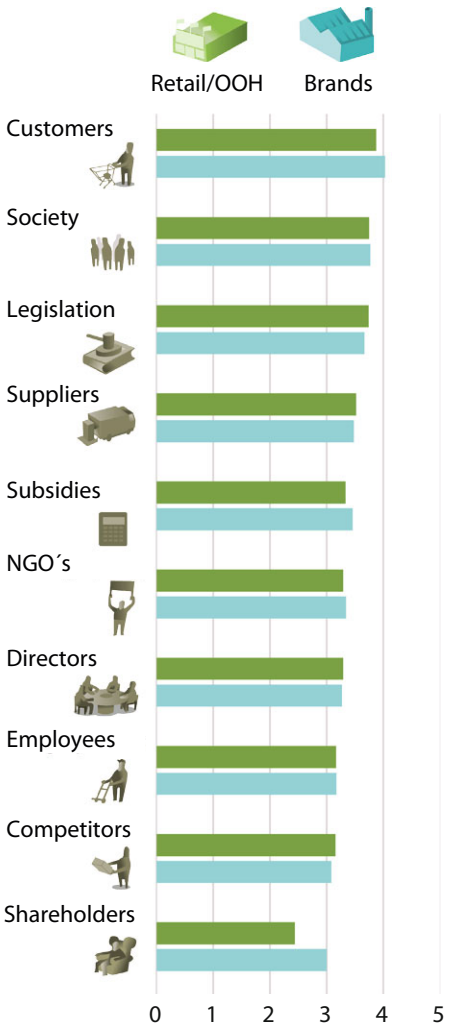

Figure 6. Influence of stakeholders on the sustainability policy of Dutch food suppliers. Numbers on the horizontal axis reflect scores on the different stakeholders measured on a scale from 1 (no influence) to 5 (very strong influence).

Especially in supermarkets, where company-customer contact occurs in a physical environment (e.g. shops and stores), an organisation must integrate sustainability into both its business models (on the strategic level) and into its product assortment (on the operational level) to fulfil new consumer needs.

Sustainability is on the agenda of companies, but ambitions must transform into actions. Firms can do more to market sustainable products and to incorporate sustainability into new business models.

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Quality of food products and consumer attitudes in France

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Abstract

The French animal food product market is nowadays very segmented, particularly with the proliferation of quality marks relating to: (1) official labels identifying a superior quality (Label Rouge), environmental quality (organic farming) or quality linked to origin (PDO and PGI); (2) product descriptions highlighting a specific feature such as 'on-farm processed' or 'mountain produce'; (3) certification of products aimed at applying normative standards. For official labels, professionals voluntarily undertake to set up and monitor a quality-focused approach individually (organic farming) or collectively (PDO, PGI, Label Rouge). Independent and competent bodies carry out regular checks, and the public authorities supervise the system. Fresh beef and lamb under quality schemes represent about 6% and 15% of French meat production. Geographical indications identify a product as originating from a region, when a given and unique trait is attributable to this region. Protected Designation of Origin (PDO) was firstly developed mainly for dairy products. The integration of local breeds into PDO includes all PDO ewe cheeses, the majority of PDO meat, about half of PDO cow cheeses and a third of PDO goat cheeses. The breed may contribute to the product's specificity or may be mainly a means of differentiation and a marketing claim. The evolution of demand results from changes in: (1) demographic composition and way of life of consumers; (2) characteristics of agriculture and food products; and (3) preferences of consumers for specific attributes (e.g. taste, health and locality). For beef, French consumers seem to favour a beef eating-quality guarantee. The market outcome of certification programmes depends upon consumer awareness, understanding and confidence in high quality labels.

Keywords: designation of origin, quality labels, consumers' perception, consumers' attitudes

Introduction

At the beginning of human history, products of animal origin (harvested by hunting, fishing and milking) were considered as noble food contributing to growth, strength, health and longevity. As agriculture developed, the major objective was to satisfy the nutritional needs of humans quantitatively. This objective has been achieved in developed countries, and especially in the European Union (EU), which is self-sufficient for most animal products. The great change in our society is thus that the farming and agri-food sectors are faced with a saturation of general food markets in Europe and consequently with an increasing demand by consumers for high-quality products produced under animal-friendly conditions and with respect for the environment. The major questions currently are thus how to define quality, and how to improve the quality of animal products to satisfy emerging consumer requirements. Whereas animal production was originally focused on quantity; it has now shifted towards delivering high and consistent quality, together with improved safety. These are important issues in the European food industry. Quality used to be considered in relation to physical product quality (sensory, nutritional, technological and ethics traits). It is also important to emphasise

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that not only consumers, but also international and national legislation consider demands on quality and safety as priorities (probably due to the perceived demand of consumers by the policy makers). Last but not least, the increasing demand for quality and safety traits has induced a proportional increase in the desire to control, monitor, trace and track products throughout the food supply chain. Traceability was established in response to this, and is expected to ensure quality and safety at the consumer end. Although this is not immediately apparent, traceability is now included in quality attributes and related guarantees. Since the concept of quality is becoming more sophisticated, the first part of this paper deals with the description of quality concepts and official quality marks in France while the second part describes consumer attitudes towards these quality marks.

Quality concepts and official quality marks in France

Issues

The development of quality marks in France was initially motivated by the desire to protect renowned geographical names and by the need for sustainable development of agriculture. The issue is to maintain or even possibly increase the production of high quality products and hence to maintain the presence of producers and farmers in the French rural areas.

The French scheme of marks for identifying product quality and origin aims to (1) enable producers and other stakeholders to increase the value of their products by encouraging diversity and specificities of products in association with local environments; (2) give consumers the possibility to choose quality foods with a special character and good taste, produced in an animal-friendly way and with respect for the environment. Thus the scheme encourages the development of rural areas and national regions, making it possible to (1) preserve biodiversity, local expertise and natural resources, and maintain variety in the landscape; and (2) maintain the dynamics of rural areas through activity of local producers around common projects by mobilizing them around collective organizations for future progress. In this way, the implementation of a policy for marks identifying product quality and origins is expected to contribute to the socio-economic dynamics of local communities. It can be seen as a beneficial tool enabling regions to highlight more effectively the value of certain specific forms of traditional production (INAO, 2010a). Finally, the scheme allows producers to differentiate their produce both locally and nationally and also, to an increasing extent, internationally.

Principles

The foundation of the French scheme of marks identifying product quality and origin is a joint commitment of the State and industry professionals (farmers, processors) to guarantee quality of food for consumers that meets their expectations and offers them more choice with more information to guide their final purchases. The development of such a scheme is based on the assumption that consumers attach great importance to taste, to the pleasure of eating, to traditional gastronomy, and to sustainable development of agriculture.

The scheme is based on three core principles:

1. Industry professionals undertake voluntarily to put in place and monitor a quality-focused approach either individually (for organic farming only) or collectively (for all the other quality marks).
2. Quality of a product must be defined in a set of specifications drafted by professionals and validated by the public authorities. These specifications detail the specific features of the product, the rules for its production and processing, and also the rules to check that producers do indeed follow the specifications.
3. Public authorities supervise implementation of the scheme.

The French Ministry of Agriculture defines the policy on food quality and controls the scheme of marks identifying product quality and origin. It is the supervisory authority for the 'National Institute for Origin and Quality' (INAO), a public agency which examines applications of professionals to be recognised through any official quality mark (except product conformity certification), monitors adherence to organic farming rules and supervises all inspections. Generally, the INAO is thus responsible for management of marks for the identification of product quality and origin. It possesses a standing council, national committees dealing with specific domains (wine, protected designations of origin for agri-food products, the Label Rouge quality mark, organic farming and others) and an approval and inspection board. All of these bodies bring together representatives from producers, consumers, qualified experts and members of official departments and agencies. The Agence Bio, a public agency, is responsible for the development and promotion of organic farming. Thus, to summarize, the basis of the French scheme for quality marks is linked to the fact that the public authorities validate the recognition procedures for value-added product descriptions and product certification schemes (INAO, 2010a).

Three EU schemes known as PDO (protected designation of origin), PGI (protected geographical indication) and TSG (traditional speciality guaranteed) promote and protect names of quality agricultural products and foodstuffs. These EU schemes encourage diverse agricultural production, protect product names from misuse and imitation and help consumers by giving them information concerning the specific character of the products:

- PDO covers agricultural products and foodstuffs which are produced, processed and prepared in a given geographical area using recognised know-how.
- PGI covers agricultural products and foodstuffs closely linked to the geographical area. At least one of the stages of production, processing or preparation must take place in the area.
- TSG highlights the traditional character, either in the composition or means of production

'Appellation d'Origine Contrôlée', 'Appellation d'Origine Protégée' and Protected Designation of Origin

The concept of designation of origin and geographical indication is based on a combination of the characteristics of the natural environment where production takes place and human factors such as the know-how of producers. This combination is considered as the key which determines the final product quality.

The first designations of origin were created in 1905 and called in French 'Appellation d'Origine'. The first AOC ('Appellation d'Origine Contrôlée') was created in 1935 with the establishment of the former 'Institut National des Appellations d'Origine' (INAO). The AOC designates products originating in a given region or location where their quality or characteristics are essentially due to the local environment. It is the result of a combination of a form of production and processing, and a determined geographical area involving the interaction of, among other things, natural, climatic, physical and human factors giving the product a specific character (concept of '*terroir*', Figure 1). The AOCs mainly apply to wines, spirits and dairy products, but also to olive oil, fruit and vegetables, meat and honey (INAO, 2010a).

Since 1992, indications of origin have gradually become an integral part of the EU food quality policy. Based on the EU regulation published on the 3 January 1994, it was established that PDO ('Appelation d'Origine Protégée' or AOP in French) is the European equivalent of the AOC for all products other than wine. From 2008 onwards, AOC wines are also PDO.

The PDO protects a region, a defined location or, exceptionally, a country, where these designate a product whose characteristics are due to a geographical environment and whose production *and* processing *and* preparation, are carried out in the defined geographical area. In other words, the PDO

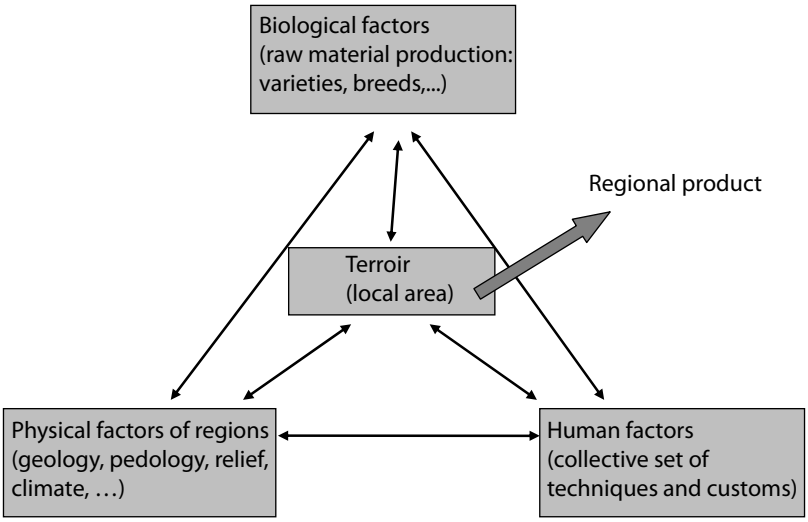

Figure 1. The concept of 'terroir' which is the basis of designation of origin.

identifies a raw or processed agricultural product that is authentic and typical of a clearly-defined geographic region of origin, that is well-known or even renowned (it cannot be created since it recognizes an existing, long-lasting form of production), has specific characteristics and represents specific know-how, and is subject to regulatory procedures of approval and control.

The PDOs are governed by Council Regulation (EC) No 510/2006 concerning the protection of geographical indications and designations of origin for agricultural products and foodstuffs. In France, examples are *Piment d'Espelette*, *Miel de Corse*, *Pomme de terre de l'Ile de Ré*, *Lentille verte du Puy*, *Poulet de Bresse*, *fromage Comté*, *Beurre d'Isigny* and *Brie de Meaux.*

In France, the integration of the breed type of animals (local breeds) within the official rules for products under PDO has increased since the 1990s. Nowadays it includes all PDO ewe cheese, the majority of PDO meat and, based on tonnes produced yearly, about half of PDO cow cheese production and a third of PDO goat cheese production. In cheese production, the share of dairy cows and dairy ewes contributing to PDO production is estimated at about 7% and 33%, respectively. In many cases, the breed contributes to the product's typicity and does strengthen the notion of origin but, in certain other cases, the breed may only be a marketing argument (Lambert-Derkimba *et al.,* 2006). From data recorded in 2007-2008, it was shown that the highest added-values for cheeses (i.e. prices of cheeses from +72-124% compared to similar non-labelled products) were for PDO cheeses strongly associated with local breeds (*Livarot*, *Ossau-Iraty*, *Abondance*, *Reblochon*, *Langres*, *Beaufort*).

Protected Geographical Indication (PGI)

The PGI refers to products originating in a geographical area for which a defined level of quality, reputation or other characteristics may be attributed to this geographical origin. In other words, the PGI identifies a raw or processed agricultural product that gets its quality, reputation or another characteristic from a given geographical region of origin, that is produced or processed or prepared in this given geographical area of origin and that is manufactured under conditions that are subject to specific control procedures. PGIs have existed since 1992 and they are covered by the same EU Regulation as PDOs – Council Regulation (EC) No 510/2006 of 20 March 2006. The PGIs apply to agricultural and food sectors (in particular to poultry, beef and ovine meat, fruit and vegetables,

among others) and since August 2009 also to wines. Some examples of PGI in France are *Emmental de Savoie*, *jambon de Bayonne*, *pruneau d'Agen*, *clémentine de Corse*, *riz de Camargue*, *poularde jaune d'Ancenis*, *haricot tarbais*, *mirabelle de Lorraine*, *poulet jaune des Landes.* Examples from abroad are *Dorset blue cheese* (UK), *Greussener salami* (Germany), *turron de Alicante* (Spain) and *mel do Alentejo* (Portugal).

The main difference between the PGI and PDO schemes is a less stringent code of practice for PGI, especially in the raw material procurement area, which allows factory-scale production for PGI, while PDO is closer to agricultural origin and small-scale production (Table 1). The contribution and value of different geographical origin marks in France are shown in Table 2.

Traditional Speciality Guaranteed (TSG)

The TSG provides protection for products of a traditional nature that are not (or are no longer) linked to their geographical origin. In other words, TSG identifies a raw material of specific composition, method of production and/or method of processing for human consumption (it is often a recipe) with a traditional name (in use for at least one generation), with well-known specific characteristics,

Table 1. Main characteristics of PDO and PGI products.

Protected Designation of Origin (PDO)	Protected Geographical Indication (PGI)
Relationship with the local area (terroir): There is a very close relationship between origin and quality/typicity of the product.	Relationship with the local area (terroir): There is a looser relationship between origin and quality/typicity of the product.
The product is exclusively determined by its origin	The product is mainly determined by its origin
All of the production and processing operations take place within the geographical area, e.g. for AOC meat, the animal is born, bred and slaughtered within the geographical area and the major part of the food it eats comes from the geographical area (for example, Maine-Anjou PDO meat comes from animals born, bred and slaughtered in the area, and 80% of the food the animals consumes comes from the geographical area)	The production or processing operations take place within the geographical area (e.g. PGI Aveyron lamb is not necessarily slaughtered in the geographical area and other than its mother's milk, the food it consumes does not necessarily come from the geographical area. However, the system of rearing with its mother in a sheepfold which has earned it its reputation, must take place within the geographical area)
It is possible to prove that each production/ processing operation that takes place within the area influences the final product	There are one or more phases in production for which no effect on the product can be proved
The product presents specific characteristics connected with a defined area (e.g. Mont-Saint-Michel salt meadow lamb)	The product shows characteristics and a name related to the area of production. In most cases, these characteristics are connected with the processing method (e.g. Bayonne ham)
Regulation 510/2006 PDO designates an agricultural product of foodstuff, 'the quality or characteristics of which are essentially or exclusively due to a particular geographical environment with its inherent natural and human factors, and the production, processing and preparation of which take place in the defined geographical area '	Regulation 510/2006 PGI is an agricultural product or foodstuff 'which possesses a specific quality, reputation or other characteristics attributable to its geographical origin, and the production and/ or processing and/or preparation of which take place in the defined geographical area'

Table 2. Key figures related to geographical origin marks in France (INAO, 2010b).

	Number of labels	Number of producers	Relative importance (in 2008)		Value (€ billion)
Designation of origin (wines)	394	75,000	57% of overall vineyard area	82% in value	11 (wines) 2 (alcohol)
PDO milk products	49	21,000	16% of all ripened cheese	24% in value	1.5
PDO agro-industry	41	11,000			0.16
PGI agro-industry	89	12,000			1

and that is subject to controls (or inspections). The TSGs apply to cheeses, meat-based products, beer, cakes and biscuits.

TSG is not currently developed in France (only 5 applications are being processed at present among which are *le gâteau Basque* and *la moule de bouchot*), but is present for different products in other European countries, e.g. *Mozzarella* (Italy), *Serrano* ham (Spain), traditional farm-fresh turkey (United Kingdom), vieille *Gueuze lambic* and *vieille Kriek* beers (Belgium), *Kalakukko* (a Finnish stuffed bread), *Falukorv* (a Swedish sausage). There are a total of 30 such products in Europe. In 2009, le '*Boeuf de tradition élevé à l'herbe*' (grass fed beef) was recognised in common by UK, Ireland and France (INAO, 2010b). The TSG product must be either manufactured using traditional raw materials, or based on a traditional composition or method of production and/or processing. The TSGs are governed by Council Regulation (EC) No 509/2006 of 20 March 2006 on agricultural products and foodstuffs as traditional specialities guaranteed (INAO, 2010a).

Organic products

The indication 'Agriculture Biologique' (AB) which means 'Organic Farming' certifies that the product derives from a mode of production and processing that is protective of natural balances and animal welfare as defined in a highly stringent set of specifications backed by systematic controls. Organic farming is a production system label identifying a raw or processed agricultural product that respects natural cycles and rhythms (environmental balance) and does not employ synthetic chemicals. Its uniqueness is that it is an individual (not collective as for PDO, PGI or TSG), but officially-declared producer initiative, is subject to organisation-led controls or inspections, and is compatible with some of the official labels.

A wide range of organic farm and food products, both fresh and processed, is available from various outlets e.g. specialist stores and supermarket chains, direct farm sales, open-air markets and over the Internet. In France, these products are identified by the 'AB' mark. The first official recognition of organic farming in France dates back to the agricultural reform law of 1980, and later, at European level, in a Regulation adopted in 1991, supplemented in 1999 and revised in June 2007 (Council Regulation (EC) No 834/2007 and No 889/2008). In 2001, Agence Bio, a public agency, was set up and given the task of contributing to the development and promotion of this form of production (INAO, 2010a). Currently, the French production of organic products is lower than the domestic consumption of such products, meaning a substantial amount of organic produce on the French market is imported. The work of the 'Grenelle de l'Environnement', a consensus conference regarding environmental issues, recommended in September 2007 that France should develop the consumption of organic food products in collective catering with the objective of reaching 10% of organic foods in menus by 2010 and up to 20% by 2012.

Label Rouge

The agricultural quality label or Label Rouge certifies that the product possesses a specific set of characteristics establishing a level of quality higher than that of a similar product of the standard type. In other words, Label Rouge identifies a raw or processed agricultural product that has characteristics determining a 'superior quality' level (compared with 'standard' products) as indicated by hedonic tests, that guarantees a set of specific characteristics defined in technical aspects (specific to each industry), and that is subject to controls or inspections. Two aspects play an important role in the Label Rouge namely palatability and quality associated with the image of the products. For some products, where palatability is difficult to assess routinely (such as meat), the relative importance of the product image becomes higher. The label is awarded to poultry, meat, delicatessen meats, dairy products, marine products, fruits and vegetables. Some examples are: fattened pullets, free-range hen eggs, canned sardines, veal meat from suckling calves, cooked ham, farm churned butter, smoked salmon, and others.

The principle underlying the label was given official recognition in the agricultural reform law of 5 August 1960. At all stages in its production and processing the product must satisfy regularly updated controls and requirements regarding quality and taste, these being based on the establishment of sensory profiles and the use of hedonic testing at the end of the process. As Label Rouge is the most widely recognised product quality predictor in France, it may provide benefits for primary producers and retailers. Label Rouge is a French-specific mark but producers or retailers from other countries can use it to sell their products in France thanks to controls approved by France even if done by non-French organisations.

When French consumers see the Label Rouge quality mark they know they are getting a superior quality product. Records show that more than 500 registered specifications for the Label Rouge are on the market, mostly in the poultry industry. The scheme covers nearly 50,000 producers: poultry farmers, livestock farmers, dairy producers, market gardeners, oyster breeders, sea salt producers and fishermen, among others. In fact, 31 different product categories (meat, poultry, delicatessen pork meat, eggs, fruit and vegetables, cereals – wheat flour, fisheries, aquaculture, dairy products, honey, soft drinks and others) are supported by the Label Rouge. The reputation and the commercial impact of Label Rouge are more important for some products such as poultry, and less so for red meat. The annual net sales generated by Label Rouge labelled products amount to around €1.2 billion (INAO, 2010b). French and EU logos for various official quality marks are shown in Figure 2.

Product conformity certification and other commercial marks

These quality marks are not official. In this case, products are differentiated from a standard product by at least two specific characteristics. This approach can be individually-led (in contrast with official quality marks). Product Conformity Certification (PCC) provides confidence that specific products will meet their contractual requirements. Inspection is performed by an independent third-party organisation, which is under the responsibility of the Ministry of Agriculture. Generally, this approach is quick and simple, as it only requires straightforward registration with a national authority (no recognized official procedures). Consequently, PCC products are less expensive than products with official quality marks. The PCC products have boomed during food-health crises and the role of supermarket chains in the development of PCCs has been important. The PCC is a success mainly for animal products.

Besides all these indications, a plethora of non official labels also exist (e.g. product labelled as General Competition, chosen as 'Best Product of the Year' or 'Flavour of the Year'). They represent a marketing and differentiation approach that may achieve prominence (depending on how successfully they are advertised), for instance, mountain produce, farmhouse product. Their scope also often extends beyond on-farm processed foods (e.g. 'Best-in-Category', 'Product of the Year').

	Protected designation of origin (PDO)	Protected geographical indication (PGI)	Traditional Speciality Guaranteed (STG)	Organic farming	Label Rouge
EU					
France					

Example of AOC: 'Agneau Pré-salé du Mont-Saint-Michel'

Example of PGI: 'Jambon de Bayonne'

Example of Label Rouge with also a PGI mark: 'Poulet Noir' (photo Clairy Voltz)

Figure 2. French and EU logos for official quality marks and some examples of products.

Overview of the quality marks market

France is the second country after Italy in terms of numbers of quality marks linked to origin (Table 3) and the third country in value for PDO/PGI marks in Europe (2,586 million Euros) after Italy (5,205 million Euros) and Germany (3,612 million Euros) (http://www.foodquality-origin.org/Gineva/11june/eu_pdo_pgi_en.pdf).

In France, the highest numbers for PDO and PGI marks are for fresh meat and cheeses and then for fruits, vegetables and cereals, the other products having less than 10 items with PDO or PGI marks. The situation is different in other countries with the highest quality marks market (Table 3).

As shown in Figure 3 with data from 2004 (Agreste Primeur, 2006), the number of quality marks under the PDO/AOC system is quite low but the net turnover in € million is quite high compared to the Label Rouge (with a high number of marks but a lower net turnover). Almost all AOC products are also covered by the European labelling system whereas most of the Label Rouge products

Table 3. Numbers of quality marks linked to origin in 2008 (from: http://www.foodquality-origin.org/Gineva/11june/eu_pdo_pgi_en.pdf).

	France	Spain	Italy	Germany
Total numbers of PDO/PGI marks	156	110	165	62
Fresh meat	52	13	2	3
Cheeses	45	19	34	4
Fruits, vegetables and cereals	27	29	52	3

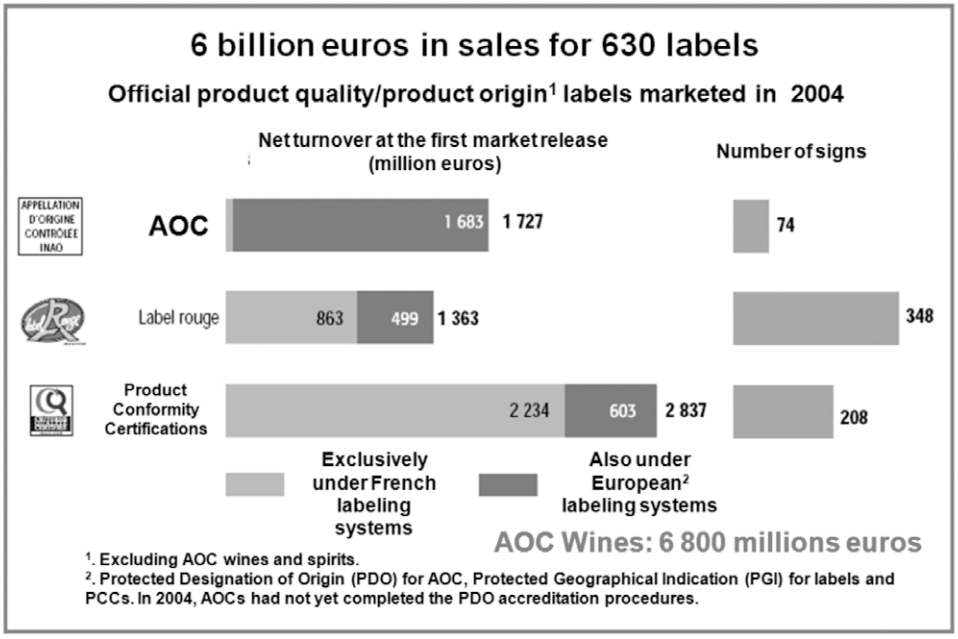

Figure 3. Official product quality/product origin labels marketed in France. The classification of quality marks is no longer up to date but the comparison of data is still valid (Agreste Primeur, 2006).

are exclusively covered by the French labelling scheme. The success of PCC products is more important in terms of net turnover and most of them are also exclusively covered by the French labelling scheme. The net turnover of quality marks for food products except wines is similar to the net turnover for wines only.

In the case of meat, 84 to 97% of the volume of French production has no official quality mark (Table 4). The most developed quality marks are Label Rouge, combined or not with PGI, and also certified products (PCC). The proportion of meat products under AOC or organic quality marks is low. Currently, French production of organic meat is much lower than domestic consumption, which means that a considerable quantity of organic meat must be imported.

Table 4. Key figures for official quality marks in the meat sector in France (source: Fil Rouge, 2010; Sylaporc, 2010).

	Label Rouge no PGI	Label Rouge + PGI	PGI alone	PCC + PGI	PCC no PGI	AOC/PDO	Organic	Sum	Conventional	Total
Beef (tonnes)	18,390	6,658		4,070	32,200	1,418	10,921	73,657	1,249,343	1,323,000
%	1.39	0.50		0.31	2.43	0.11	0.83	5.57	94.4	
Veal (tonnes)	3,481	5,790			21,310		930	31,511	166,589	198,100
%	1.76	2.92			10.76		0.47	15.91	84.1	
Lamb (tonnes)	2,725	2,130	80	2,927	3,780	82	642	12,366	71,534	83,900
%	3.25	2.54	0.11	3.49	4.51	0.10	0.77	14.76	85.3	
Pork (tonnes)	49,985	18,656	455				5,592	74,688	2,155,712	2,230,400
%	2.24	0.84	0.02				0.25	3.35	96.7	

Consumer attitudes

Consumer awareness and expectations

Recent studies within the EU-funded integrated project Truefood have shown that awareness of the PDO system is quite good among European consumers, especially in France, Italy and Spain (Figure 4). Traditional food consumption patterns are stronger in the South than in the North of Europe whereas consumers from the North of Europe place more trust in commercial brands. The PGI system is well known in Italy but not so much in other countries whereas the TSG system is the less well known. Generally, consumer awareness is in line with the market presence of products with geographical indications, with countries such as France, Italy and Spain taking the lead positions. Furthermore, this Truefood consumer study profiled European traditional food consumers as typically middle-aged to elderly who are health-conscious, ethnocentric, food connoisseurs, attached to familiar characters in their food choice and who enjoy cooking (Vanhonacker *et al.,* 2010). Foods with quality marks were also found to be particularly popular among the so-called traditional food consumers segment.

In the specific case of beef taken here as an example, a qualitative consumer study was carried out with beef consumers in France, Spain, United Kingdom and Germany to assess their interest in a beef eating-quality guarantee. Such a system would be well accepted by European beef consumers at least for some European consumer groups, although not unconditionally. Participants expressed some reservations related to the possible upgrading of lower value cuts, too much standardisation,

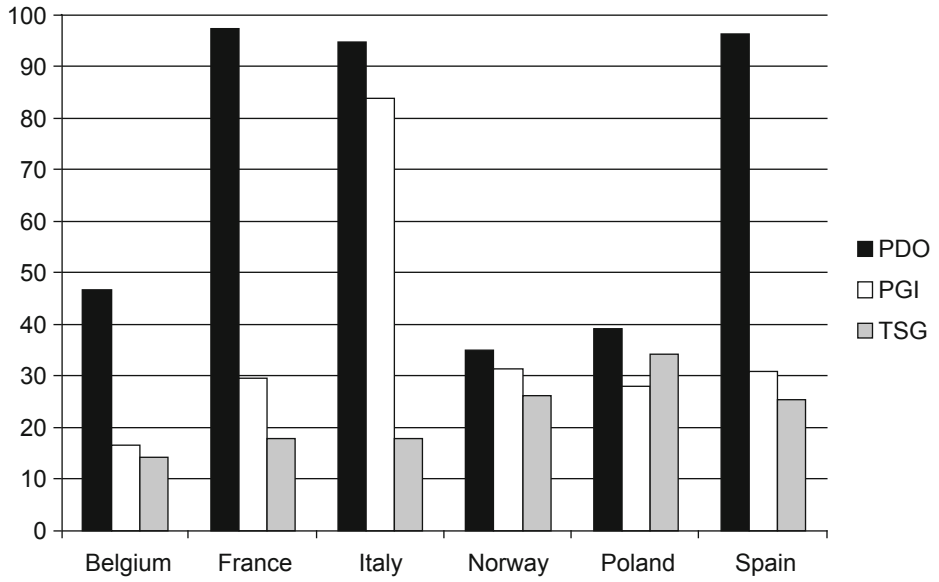

Figure 4. European consumer awareness of PDO, PGI and TSG (%, n=800 per country) (Verbeke et al*., 2012; Truefood consumer survey 2007; Vanhonacker* et al*., 2010).*

high cost of implementation, overload of information, and the fact that tenderness is to some extent subjective. They further require the system to be simple, sufficiently documented and independently controlled. Consequently, this work indicates good opportunities for the development of a beef eating-quality guarantee system in Europe to better satisfy consumers, increase beef consumption and industry profitability and also to improve competitiveness of the European beef industry (Verbeke *et al.,* 2010). Such a system exists in Australia which has developed the Meat Standards Australia (MSA) grading scheme to predict beef quality for consumers. Many qualities of the MSA system have been recognized in France since this system was judged original, relevant and sufficiently mature in its application. It is based on a scientifically-based prediction of beef quality rather than relying on tradition and perceptions of quality. It is credible, flexible and open-ended. However, the final delivery of precise quality grades to consumers is still lacking at retail level due to only partial implementation of the system in Australia. Its adaptability to France would be difficult due to the complexity of the French beef industry and market. But the programme would certainly induce much-needed changes to preserve and better develop the beef sector in France and eventually in Europe (Hocquette *et al.,* 2011).

Consumers' perceptions

From a national survey in 2007 (Figure 5), it is clear that the official quality marks do not have the same meaning for all products. Organic vegetables are perceived as more expensive and healthier relative to standard vegetables than other products. In addition, they are perceived as tasty, safe, environmentally friendly and traditional products. The taste and safety of Label Rouge products are recognized for poultry, but these products are also expensive compared to others. As with organic vegetables, organic eggs are perceived as expensive. They differ from conventional eggs not in taste but in method of production. Except for renowned names (*Roquefort, Comté*), PDO cheeses have no strong advantages and their quality matches their medium price.

	Traditional products	Better taste	Safe	Environmentally friendly	Healthier	More expensive
AOC wines	+	-	-	--	--	+
Certified products	-	-	+	-	-	++
Products with a distinction	+	+	-	+	-	++
PDO cheeses	+	+	+	-	-	++
Organic eggs	+	+	+	+	+	+++
Label Rouge poultry	+	++	++	+	+	+++
Organic vegetables	++	++	++	+++	++	+++

Figure 5. Consumers' perception of food products in France (from Tavoularis, 2008).

Products with any non-official label but which are nevertheless renowned are perceived as expensive but produced in a traditional way. The PCC products are expensive but safe. Quality of AOC wine is variable. The AOC sign is not associated with quality but with the origin of the products. The PCC products and AOC wines, which are the least expensive, are successful compared to other products although their perceived intrinsic quality is moderate compared to other PDO products, organic or Label Rouge products (Tavoularis, 2008).

Consumer behaviour

Because of a perception of excessive price rises in the food consumption sectors and also because of a strong desire to buy modern products associated with the new information and communication technologies, consumers are at risk of making choices to the detriment of some food products, notably the more healthy foods. The share of the household expenses devoted to food products has fallen steeply since 2002. Announcements by the public press of increases in prices of food products because of the increase in prices of raw materials are leading to an amplification of this phenomenon (Tavoularis *et al.,* 2007).

Moreover, consumers face an overload of information and often receive conflicting information, e.g. related to the nutritional value versus possible toxicological risks of particular foods (e.g. seafood). The main factor determining the choice of consumers increasingly concerns their immediate desires rather than their real long-term needs. The younger generations especially are more and more oriented towards immediate satisfaction (Tavoularis *et al.,* 2007).

Since 2000, after the second Bovine Spongiform Encephalopathy (BSE) crisis, the criterion of a competitive price comes in second position after the guarantees of hygiene and safety (Sans *et al.,* 2008). In spite of the improvement in economic conditions between 2005 and 2007, sensitivity towards food prices has increased in the food consumption sector. When asked 'These last few months, did you compare prices between shops?' the proportion of people questioned who answered 'more than usually' increased from 24% in 2005 to 34% in 2007 (Tavoularis *et al.,* 2007).

Furthermore, the concept of food quality is slowly moving towards appearance and price. Indeed, although taste still plays a major role in food representations and choices, the appearance of the product and its price are more important among those factors considered by consumers as easily-recognisable quality predictors. Consumers are also more concerned about health issues and more recently about protection of the environment and animal welfare issues. In this context, the indication

of an official quality mark plays a relatively minor role compared to the previous factors, although more important than brands, packaging, awards or advertising (Figure 6). This is especially true for younger generations which are more concerned about the price than about official quality marks (Tavoularis *et al.,* 2007).

However, trust in the quality marks is mainly strong for all the marks, labels or certifications (which are unofficial quality marks). Indeed, in 2007, 85.8% of French people trusted in products with a PDO mark, 82.8% trusted in Label Rouge products, 65.6% trusted in products originating from organic farming, 61.4% trusted in products having a specific distinction and 45.6% trusted in certified products. On average, the image consumers have of official quality marks is as good as or perhaps even better than that of brands. It also seems clear that the oldest marks have the strongest credibility. Nevertheless, when we consider only those people who know the quality marks, certified products enjoy the same level of trust (65.5%) as the Label Rouge (66.8%) or specific distinctions (65.0%) (Tavoularis *et al.,* 2007).

As a consequence of consumers' trust, expectations, perceptions and behaviour, about 60% of French people in 2007 were willing to pay a higher price for meats or for poultry with an official quality mark[1]. For all the other products, less than 50% of French consumers were ready to pay a higher price, as was the case for cheeses, eggs and delicatessen foods. There were even fewer (less than 40%) willing to pay more for certain types of milk, wine or ready-made meals if they carried an official quality mark.

The main drivers of food product purchases have remained, over the years, guarantees of hygiene and safety (due in part to the BSE crisis some years ago) and also a competitive price (Figure 7). The French origin of the product and the renown brought by official quality marks or a trusted brand are only among the second group of factors driving food product purchases (Tavoularis, 2008). Nevertheless, quality marks can play an important role in shaping future consumer behaviour and decision-making owing to their possible role as a heuristic or easy decision making rule in situations where consumers are facing information asymmetry, information overload or conflicting information (Verbeke, 2005).

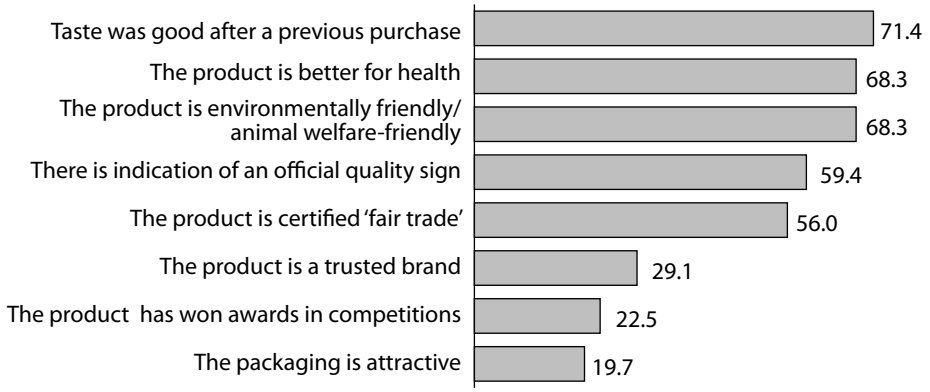

Figure 6. Consumers' willingness to pay for food products in France (in %). Source: National Food Trends - French Ministry of Agriculture and Fisheries

[1] However this measurement is based on verbal response only (Tavoularis *et al.,* 2007).

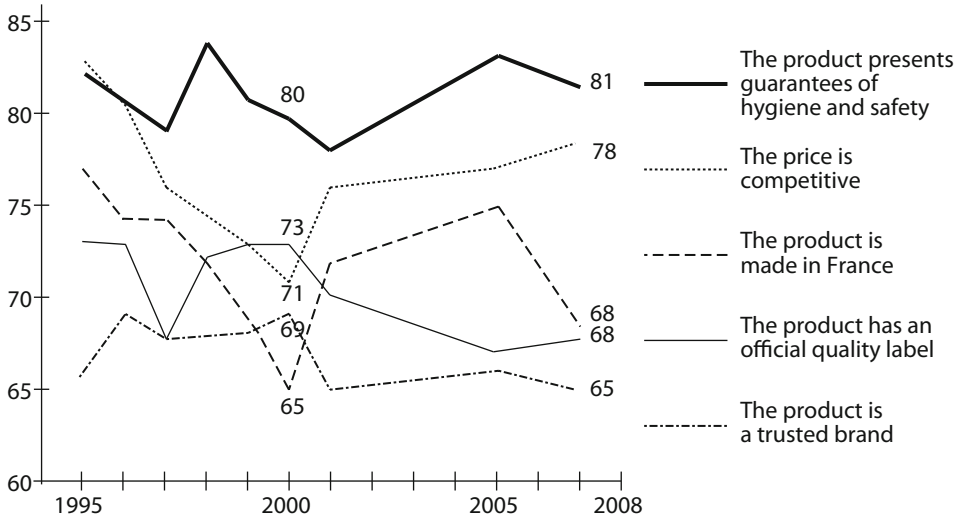

Figure 7. Reasons driving product purchases in France (from Tavoularis, 2008). Numbers are answers of consumers (in %).

Consumer typology

A survey was undertaken by French researchers after the BSE crisis with 383 respondents in the Auvergne region (in the centre of France), where half of all Label Rouge beef is produced. The objective was to measure the relative importance of each of the following attributes involved in beef consumer preference: price, animal type, breed and label. The most salient finding was that price was still the major choice criterion during the beef purchasing process. Detailed results highlight four different consumer clusters regarding fresh beef buying behaviour: (1) consumers who purchase beef based on quantitative criteria (32.1%) by buying the least expensive meat; (2) consumers who purchase Label Rouge-quality Charolais beef while refusing high prices (24.6%); (3) consumers who purchase beef based on qualitative criteria (23.1%) with medium price and a preference for organic food; (4) consumers who purchase beef based on price only (price seen as a meat quality predictor) (20.2%), without a label and without any indication of beef breed (Giraud and Amblard, 2003).

A larger national survey (Tavoularis *et al.,* 2007) also identified six distinct groups of consumers (Figure 8).

1. *Confident and trusting (29%)*: These consumers know the official quality marks, trust them and think that the scheme is sufficiently developed. They generally have enough income to pay for more products with official quality marks (for eggs, fruits, vegetables, cheese, wine, milk). They have a positive image of the following products in decreasing order: organic eggs, organic vegetables, Label Rouge poultry, AOC cheeses, products with other labels, AOC wines, certified products (PCC). These consumers are more likely than the general population to buy organic products, products of French origin, with a specific label, produced traditionally or with guarantees for safety, or that are environmentally friendly. They are more often than not consumers who do not face budget restrictions on a regular basis.
2. *Defiant (19%)*; These consumers know the official quality marks but do not necessarily trust them. Furthermore, they are not keen to pay more than they pay today for products under official quality marks. These consumers are defiant but not narrow-minded. They know there are too many labels but not too many products of quality. They are not sensitive to brands, to the French origin or to the environment aspect. The price is also not particularly important. Men, young people and people of the upper social classes are more important in this consumer group.

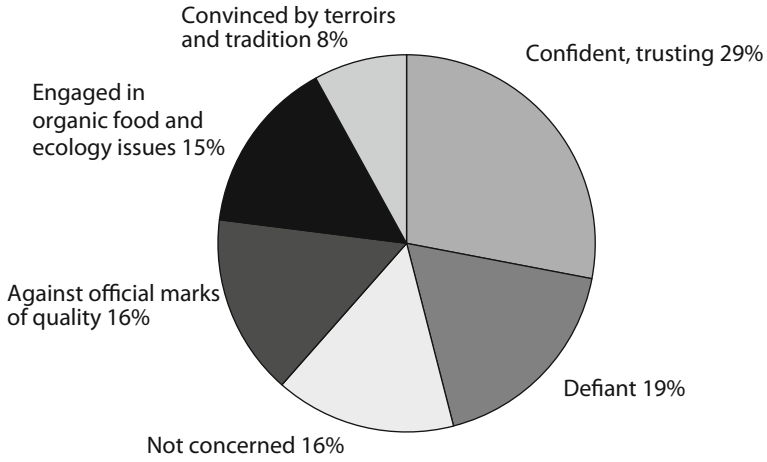

Figure 8. Consumer attitudes towards official quality marks in France (Tavoularis et al.*, 2007).*

3. *Not concerned (16%)*: These consumers do not know the official quality marks very well. Food consumption is not their first concern. They say they do not want to pay more for products under official quality marks. This group includes more elderly people, single men or women, and less well-educated people.
4. *Engaged in organic food and ecology issues (15%):* These consumers are convinced of the benefits of official quality marks and would favour new marks. They trust organic products and products with any mark of renown. They also recognize that organic products and Label Rouge products are of better quality. The first reasons why they buy food products are the ecological aspect, the French origin of the product or any official quality mark on the product. For them, the concept of 'terroir' is very important for quality. They are willing to pay more for the presence of any quality mark. Retired people, couples without children or less well-educated people are well represented in this group.
5. *Against official signs of quality (13%):* These consumers are persuaded that official quality marks do not bring any positive aspect to food products and think there are already too many quality marks on the market. They do not trust them and do not want to pay more for them. The French origin, the organic way of production, the concept of 'terroir' or labels are not valid motivations for purchase. More men, craftsmen and storekeepers are represented in this group.
6. *Convinced by terroirs and tradition (8%):* These consumers associate quality with origin, 'terroir' and traditions. They perceive all products with official quality marks positively but place more trust in certified products or products with marks indicating their well known status. They are more concerned with safety, French origin, and traditional way of production. They are willing to pay more for such products and understand why the price of products may change according to the quality marks they carry, their origin, the season, the climate and the method of production. For them, a cheap product with no quality mark is of poor quality. Manual workers and poorly educated people are more represented in this group of consumers.

Conclusions

The French of food product market is highly differentiated and very segmented due to the presence of many official quality marks under the French and/or the European labelling systems indicating high quality (Label Rouge), environmental quality (organic farming), or quality linked to origin (AOC, PDO) or provenance (PGI) which co-exist with many other distinctions and certified products. Although quality labels can play an important role in shaping food consumption decisions by providing consumers with easy selection and decision criteria, the proliferation of schemes and

labels makes the situation very complex with a probable risk of information overload for consumers. Consequently, the various quality marks do not have the same significance for all products and have to take into account the various groups of consumers who differ in their expectations, awareness, perception and thus behaviour.

Generally, consumers have a favourable *a priori* perception of products that carry an official quality mark, but they express a degree of misunderstanding on the real guarantees offered by official quality marks. Clearly, a high price for products with an official quality mark is a negative factor for purchases. In addition, increasing price sensitivity hampers products that carry an official quality mark and younger age-bracket consumers are less sensitive to the presence of an official quality mark. These two observations are not favourable for the further development of official quality marks in the near future, despite a real demand by consumers and stakeholders in the food chain for quality guarantee systems. The main drivers of food product purchases in France over the years have remained safety and a competitive price. These were and will continue to be more important than the origin, the brand and/or the quality level depending on the product.

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Consumer attitudes to food quality products of animal origin in Italy

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Abstract

Food quality is the characteristics of food that is acceptable to consumers, identifiable through labelling, marketing and quality rules. According to the different kind of consumers, a lot of different product characteristics affected their choices. Nowadays consumers expect their food to be safe, wholesome, tasty, and typical (linked to tradition and land). The latest requirement has a special feeling in Southern European and in Italy, where the tradition for typical products is higher than in the Central and Northern European Countries. In fact, Italy has 22.9% of registered PDO, PGI and TSG products in EU (fresh meat 2.6%, meat products 32.7%, cheeses 21.7%, other animal products 7.4%, fishery 10.0%), and the remaining Southern European Countries (France, Spain, Portugal, Greece, Slovenia, Malta and Cyprus) 54.9%, leaving only 22.2% to the other 19 EU Countries. Moreover, other typical labels are widely spread in Italy, as Organic Farming (8.7% of Italian agricultural surface) and Slow Food Presidia (58.0% of world list). The consumption trend of animal food products is a good indicator of consumers' attitudes and in Italy in the last years we have been facing ups and downs. For instance, from 2000 to 2009 the consumption of fresh meat decreased to 86.4% (beef decreased to 86.4%, but the PGI *Vitellone Bianco dell'Appennino Centrale* raised to 154.2%), that of processed meat products to 89.7% (and the PDO products to 92.3%, even if the *Prosciutto di Parma* to 98.5%), that of fresh milk raised to 102.2%, that of cheese decreased to 90.5% (and PDO products to 95.3%, and *Parmigiano Reggiano* to 78.7%).

Keywords: meat and milk products, EU labelled products, typical products, consumption trend

Introduction

Before discussing the consumer attitudes to food quality products, some commonly used terms should be defined to avoid misunderstandings. First of all there is the need to define the term 'quality'. According to the dictionary the word has different meanings: the standard of something as measured against other things of a similar kind; the degree of excellence of something; a general excellence of standard or level; a distinctive attribute or characteristic possessed by someone or something (Oxford Dictionaries, 2010). The word meaning could also change according the subject using it. Under a transcendent point of view the term can be used to indicate the innate excellence of someone or something. Speaking about a product, the word could indicate the quantity of some ingredients, or a possessed attribute of something. For users or consumers 'quality' could be the capacity to satisfy their wishes, or the product durability. For manufacturers it could be the conformance to defined requirements, the advertising characteristics, and the obtainable market share. At last, under an economic point of view the term could be used to indicate the product price and its profitability. Besides, also the definition given by ISO 9000 should be mentioned: the ability of a set of intrinsic characteristics to satisfy requirements (ISO 9000, 2005).

Quality can be defined as 'the properties of a product that contribute to and satisfy the needs of the end-user' (Luning *et al.*, 2002). In other words, quality is the characteristics of products that consistently meets (or better exceeds) end-user or customer expectations (Casabianca *et al.*, 2005). Thus, quality will be considered as a convergence between end users' wishes and needs on one hand and the quality attributes of fresh beef and beef products on the other hand (Hocquette *et al.*, 2005).

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Trying to be more specific about the 'food quality' topic, it should be recalled that 'food' is any nutritious substance that people or animals eat or drink, any product suitable to be eaten by humans, providing nutritional support for the body; and 'quality' is used to indicate the acceptability by the consumers, identifiable through product labelling and marketing rules.

Another term that has to be defined is 'consumer'. The dictionary states that the word refers to any person who purchases goods and services for personal use, and any person that eats or uses something (Oxford Dictionaries, 2010). It should be pointed out that the consumers are a large number of different people, with different taste and wishes, thereby making it difficult to define them, so as their expectations about 'food'. According to EU Health and Consumer Protection Commissioner (Byrne, 2001), nowadays European consumers expect their food to be safe, wholesome, and tasty, and in Italy also typical.

The adjective 'safe' means, again according to the dictionary (Oxford Dictionaries, 2010), someone or something protected from or not exposed to danger or risk; not likely to be harmed or lost; not likely to cause or lead to harm or injury; not involving danger or risk; often derogatory cautious and un-enterprising; based on good reasons or evidence and not likely to be proved wrong; uninjured; with no harm done; excellent. But speaking about 'safe food' it should be recalled that 'food' is a product suitable to be eaten by humans, and safety and hygiene should be prerequisites of any products used as food. To be sure that foods are safe, in-deep inspections, according to Regulations EC/178/2002 and EC/882/2004, are needed on the whole food chain (risk and hazard analysis, own-check, audit, etc.). In Italy 22.6% of food production and processing plants were officially inspected in 2009 (Ministero della Salute, 2009).

The adjective term 'wholesome' could be referred, according to the dictionary, to someone or something conducive to or suggestive of good health and physical well-being; someone or something conducive to or characterized by moral well-being (Oxford Dictionaries, 2010). 'Wholesome food' will mean that any food must provide the right nutritional supply for the body, even if it does not bear any nutritional claims. It should be recalled, however, that different people have different nutritional needs, so some foods could fit to some persons but not to all. Another statement to be underlined is that nowadays to eat healthy food is a 'must' for everyone (even if junk foods taste so nice!).

The term 'tasty' could be used to indicate something having a pleasant, distinct flavour; attractive; very appealing; very good; impressive (Oxford Dictionaries, 2010). So 'tasty food' is a food having a pleasant and distinct flavour. But as each consumer has different tastes and each food has different characteristics, there are, fortunately, many different products for different consumers.

The term 'typical' refers, according to the dictionary, to someone or something having the distinctive qualities of a particular type of person or thing; characteristic of a particular person or thing; showing the characteristics expected of or popularly associated with a particular person or thing; representative as a symbol; symbolic (Oxford Dictionaries, 2010). So 'typical food' is any food linked to tradition and land.

The last term to define is 'attitude'. This could be a settled way of thinking or feeling about something; a position of the body indicating a particular mental state; individuality and self-confidence; a truculent or uncooperative behaviour (Oxford Dictionaries, 2010). 'Consumer attitude' is used to indicate the consumer behaviour and the disposition to purchase any kind of goods and foods. The consumer attitude is appraisable by consumer opinion surveys (expensive, time spending, imprecise, influenced by wishes or fashion, not always related to real facts) or by consumption trend analysis, giving information on the real consumption of each product.

Food labels for typical products

In Italy no tradition exists for labelled products such as in France, so together with commercial names – mostly private brands, which consumers trust more than the product itself – the Italian trade policy has focused on the European recognition of its food, as it allows for worldwide recognition, therefore making it impossible for foreign companies to use Italian food product names.

Nevertheless, in Italy there are several labels for typical products:

- PDO Protected Designation of Origin (Regulation EC/510/2006): 137 products, 27.6% of EU list (http://ec.europa.eu/agriculture/quality/door/list.html – at 1 August 2010);
- PGI Protected Geographical Indication (Regulation EC/510/2006): 80 products, 18.6% of EU list (http://ec.europa.eu/agriculture/quality/door/list.html – at 1 August 2010);
- TSG Traditional Speciality Guaranteed (Regulation EC/509/2006): 2 products, 7.4% of EU list (http://ec.europa.eu/agriculture/quality/door/list.html – at 1 August 2010);
- Organic Farming (Regulation EC/834/2007, Regulation EC/889/2008): 1,106,684 ha, 8.7% of Italian agricultural surface (http://www.sinab.it/index.php?mod=bio_statistiche&m2id=191&navId=1362 – at 31 December 2009);
- Slow Food Presidia (Slow Food Foundation for Biodiversity, 2010): 174 products, 58.6% of world list (http://www.presidislowfood.it – at 1 August 2010);
- TAP Traditional Agro-food Products (Italian Ministerial Decree 350/1999): 4397 products (http://www.politicheagricole.it/ProdottiQualita/ProdottiTradizionali/ricerca.htm – at 1 August 2010);
- DeCO Municipality Designation of Origin (Italian Law 142/1990): undefined number.

Some of the cited labels are present only in Italy, and for some of them it is difficult have data regarding production and consumption. However, for the EU registered labels (PDO, PGI, and TSG) data are available for all member countries. In the European Union with 27 members there are 497 PDO, 434 PGI and 27 TSG products, giving a total of 958 labelled products (http://ec.europa.eu/agriculture/quality/door/list.html – at 1 August 2010).

It should be stressed that the wine sector follows different labelling rules (Regulation EC/1234/2007), and Italy has 412 PDO and 120 PGI wines, respectively 30.9% and 20.4% of EU list (http://ec.europa.eu/agriculture/markets/wine/e-bacchus – 1 August 2010).

To analyse the number of labelled products in EU in detail, it could be interesting study the number of products in the different countries, or at least in the different geographical zones, dividing the 27 member countries in Eastern (6 countries: Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia), Northern (8 countries: Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, Sweden, United Kingdom), Western (5 countries: Austria, Belgium, Germany, Luxembourg, the Netherlands) and Southern or Mediterranean (8 countries: Cyprus, Greece, France, Italy, Malta, Portugal, Slovenia, Spain).

The number and percentage of products for each kind of registered label in the different zones of the EU community are reported in Table 1, showing that in the Southern or Mediterranean countries (including Italy) account for about 78% of total labelled products in the EU (83.9% of PDO, 73.7% of PGI, and 29.6% of TSG), while only few products are listed in the other EU countries. Several reasons could explain such a high percentage of EU labelled products in the Southern-Mediterranean countries: geographical, climatic (more favourable to production and preservation), historical, social, cultural, traditional, religious, etc., and their analysis could be interesting, but is out of the aim of this paper. Moreover, it could be pointed out that among the Southern-Mediterranean countries, Italy has the highest number of labelled products, followed by France, Spain, Portugal, Greece and others, as shown in Table 2.

Table 1. EU registered labels at 1 August 2010 (http://ec.europa.eu/agriculture/quality/door/list.html).

Area	PDO	PGI	TSG	Total
EU 27 (n)	497	434	27	958
East EU (n)	13	32	6	51
North EU (n)	19	27	7	53
West EU (n)	48	55	6	109
South-Med EU (n)	417	320	8	745
East EU on EU 27 (%)	2.6	7.4	22.2	5.3
North EU on EU 27 (%)	3.8	6.2	25.9	5.5
West EU on EU 27 (%)	9.7	12.7	22.2	11.4
South-Med EU on EU 27 (%)	83.9	73.7	29.6	77.8

Table 2. EU registered labels in Southern-Mediterranean countries at 1 August 2010 (http://ec.europa.eu/agriculture/quality/door/list.html).

Country	PDO	PGI	TSG	Total
Italy (n)	137	80	2	219
France (n)	82	95	0	177
Spain (n)	75	63	3	141
Portugal (n)	58	58	0	116
Greece (n)	64	23	0	87
Slovenia (n)	1	0	3	4
Cyprus (n)	0	1	0	1
Malta (n)	0	0	0	0
Italy on EU 27 (%)	27.6	18.4	7.4	22.9
France on EU 27 (%)	16.5	21.9	0.0	18.5
Spain on EU 27 (%)	15.1	14.5	11.1	14.7
Portugal on EU 27 (%)	11.7	13.4	0.0	12.1
Greece on EU 27 (%)	12.9	5.3	0.0	9.1

Analysing the reported data, it should be considered that a great number of different products can be labelled according the EU (Regulation EC/510/2006 and Regulation EC/509/2006), both of animal and plant origin, as well as water and fibres (as listed in Tables 3 and 4).

Speaking about food products of animal origin, only the products listed in class 1.1 Fresh meat (and offal), class 1.2 Meat products (cooked, salted, smoked, etc.), class 1.3 Cheeses, class 1.4 Other products of animal origin (eggs, honey, various dairy products except butter, etc.), class 1.7 Fresh fish, molluscs, and crustaceans and products derived there from, can be considered among PDO and PGI, and likewise for TSG products. The products listed in class 1.5 Oils and fats (butter, margarine, oil, etc.) could partly be included, as they are mainly oils, and for this reason they have not been included in this study.

In Table 5 the data are reported on EU registered labels for food products of animal origin in EU 27 and in the Southern-Mediterranean.

It could be pointed out that in EU 27 the registered label for food products of animal origin account for 48% of the total products (49.7% for PDO, 46.8% for PGI, and 29.6% for TSG). For all Southern-

Table 3. Different classes of EU PDO and PGI labelled products (Regulation EC/510/2006).

Class	Definition
1.1	Fresh meat (and offal)
1.2	Meat products (cooked, salted, smoked, etc.)
1.3	Cheeses
1.4	Other products of animal origin (eggs, honey, various dairy products except butter, etc.)
1.5	Oils and fats (butter, margarine, oil, etc.)
1.6	Fruit, vegetables and cereals fresh or processed
1.7	Fresh fish, molluscs, and crustaceans and products derived there from
1.8	Other products of Annex I of the Treaty
2.1	Beers
2.2	Natural mineral waters and spring water (discontinued)
2.3	Beverages made from plant extracts
2.4	Bread, pastry, cakes, confectionery, biscuits and other baker's wares
2.5	Natural gums and resins
2.6	Mustard paste
2.7	Pasta
3.1	Hay
3.2	Essential oils
3.3	Cork
3.4	Cochineal (raw product of animal origin)
3.5	Flowers and ornamental plants
3.6	Wool
3.7	Wicker
3.8	Scutched flax

Table 4. Different classes of EU TSG labelled products (Regulation EC/509/2006).

Class	Definition
1.1	Fresh meat (and offal)
1.2	Meat products (cooked, salted, smoked, etc.)
1.3	Cheeses
1.4	Other products of animal origin (eggs, honey, various dairy products except butter, etc.)
1.5	Oils and fats (butter, margarine, oils, etc.)
1.6	Fruit, vegetables and cereals, fresh or processed
1.7	Fresh fish, molluscs and crustaceans and products derived there from
1.8	Other products of Annex I of the Treaty
2.1	Beer
2.2	Chocolate and other food preparations containing cocoa
2.3	Confectionery, bread, pastry, cakes, biscuits and other baker's wares
2.4	Pasta, whether or not cooked or stuffed
2.5	Pre-cooked meals
2.6	Prepared condiment sauces
2.7	Soups or broths
2.8	Beverages made from plant extracts
2.9	Ice creams and sorbets

Table 5. EU registered labels for food products of animal origin in EU and Southern-Mediterranean countries at 1 August 2010 (http://ec.europa.eu/agriculture/quality/door/list.html).

Country	PDO	PGI	TSG	Total
EU 27 (n)	247	203	8	458
South-Med EU (n)	208	154	3	365
Italy (n)	65	17	1	83
France (n)	53	65	0	118
Spain (n)	31	25	2	58
Portugal (n)	38	47	0	85
Greece (n)	21	0	0	21
South-Med EU on EU 27 (%)	84.2	75.9	37.5	79.7
Italy on EU 27 (%)	26.3	8.4	12.5	18.1
France on EU 27 (%)	21.5	32.0	0.0	25.8
Spain on EU 27 (%)	12.6	12.3	25.0	12.7
Portugal on EU 27 (%)	15.4	23.2	0.0	18.6
Greece on EU 27 (%)	8.5	0.0	0.0	4.6

Mediterranean countries the percentage of products of animal origin (80%) is about the same as the overall one (78%). In Italy the number of EU registered labels for food products of animal origin (83 products) is lower than in France (118) and close to Portugal (85). In fact, Italy also has a high number of labelled fruits and vegetables (81 products) and labelled extra virgin olive oils (41 products).

The food products of animal origin highly represented among EU registered labels (Figure 1) are cheeses, followed by fresh meat and meat products, with less representation by other animal products and fishery, both in EU 27 and in Southern-Mediterranean countries (77.3%, 86.1%, and 82.2% on EU 27, respectively). For Italy the number of labelled fresh meat products is very low and the products of animal origin are mainly cheeses and meat products, as reported in Table 6.

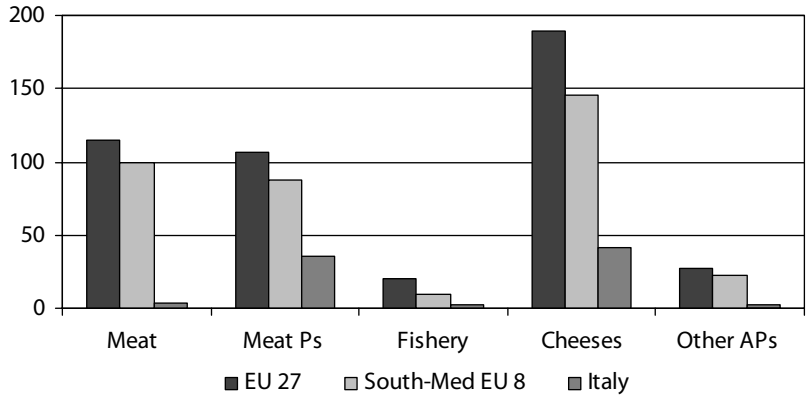

Figure 1. EU registered labels (PDO, PGI and TSG) for food products of animal origin in EU, Southern-Mediterranean countries and Italy (n).

Table 6. EU registered labels for different classes of food products of animal origin in EU, Southern-Mediterranean countries and Italy at 1 August 2010 (http://ec.europa.eu/agriculture/quality/door/list.html).

Country	Class	PDO	PGI	TSG	Total
EU 27 (n)	fresh meat	27	86	2	115
	meat products	31	74	2	107
	cheeses	166	20	3	189
	other animal products	19	7	1	27
	fishery	4	16	0	20
South-Med EU (n)	fresh meat	20	79	0	99
	meat products	30	57	1	88
	cheeses	138	7	1	146
	other animal products	17	5	1	23
	fishery	3	6	0	9
Italy (n)	fresh meat	0	3	0	3
	meat products	23	12	0	35
	cheeses	39	1	1	41
	other animal products	2	0	0	2
	fishery	1	1	0	2
South-Med EU on EU 27 (%)	fresh meat	74.1	91.9	0.0	86.1
	meat products	96.8	77.0	50.0	82.2
	cheeses	83.1	35.0	33.3	77.3
	other animal products	89.5	71.4	100.0	85.2
	fishery	75.0	37.5	0.0	45.0
Italy on EU 27 (%)	fresh meat	0.0	3.5	0.0	2.6
	meat products	74.2	16.2	0.0	32.7
	cheeses	23.5	5.0	33.3	21.7
	other animal products	10.5	0.0	0.0	7.4
	fishery	25.0	6.3	0.0	10.0

Consumption trend for food products of animal origin in Italy

As previously stated, consumption trend analysis can be used to provide information on the real consumption of each product, appraising in such way the consumer attitude to different products.

The Italian consumption trend for food products of animal origin, from year 2000 to 2009, is reported in Tables 7 and 8 as the average consumption per inhabitant. Concerning meat consumption, it should be recalled that in 2000 and in 2005 the market faced two big crises: Bovine Spongiform Encephalopathy (BSE) and the Avian Flu (especially in Italy), both showing their effect on beef and poultry consumption in 2001 and 2006. Generally speaking, in the last ten years the meat market lost more than 12%, with different amounts according to species (more horse and lamb, less poultry and beef, very little pork). Concerning milk consumption, the trend is more regular, showing in general only a little loss – around 1% – in the last ten years, with some products going down (milk and butter), but others growing up (cheeses, but especially yoghurt).

For improved analysis of the consumption trend, it is useful to provide the data in the same unit, therefore in Tables 9 and 10 the domestic purchases trends for meat and milk and their products, as well as for PDO products, are reported as an index of the first year (2000). All meat purchases show an up and down trend, confirming the poor performance of lamb meat and the stability of pork

Table 7. Consumption trend for meat products in Italy (kg/capita) (adapted from ISMEA, 2005, 2008, 2010a).

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Var. % 09/00
Meat	100.8	88.0	88.8	88.9	87.5	86.3	85.0	88.0	88.8	88.3	-12.45
Beef	28.0	22.5	24.6	24.8	24.0	24.4	25.0	24.8	24.4	23.8	-14.81
Pork	40.4	39.4	38.8	39.4	38.5	37.4	38.9	39.9	40.4	40.3	-0.18
Lamb	2.4	1.6	1.5	1.5	1.5	1.5	1.6	1.5	1.4	1.5	-37.75
Poultry	20.7	18.5	18.1	17.6	18.0	17.7	14.5	17.2	17.8	17.9	-13.57
Rabbit	5.7	4.2	4.2	4.1	4.2	4.4	4.0	4.2	4.3	4.4	-23.25
Horse	1.8	1.9	1.6	1.5	1.3	0.9	1.0	0.4	0.4	0.4	-78.85

Table 8. Consumption trend for milk products in Italy (kg/capita) (adapted from ISMEA, 2005, 2008, 2010a).

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Var. % 09/00
Milk eq.	290.2	298.1	304.5	298.5	313.6	298.7	294.0	281.8	283.5	286.9	-1.14
Milk	57.1	58.1	57.9	57.2	56.9	58.4	56.7	55.3	52.4	53.0	-7.13
Yoghurt	6.3	6.4	6.4	6.6	6.3	7.6	8.5	8.4	8.3	8.4	33.33
Butter	2.8	2.9	2.9	2.9	2.7	2.7	2.7	2.6	2.5	2.5	-9.64
Cheeses	21.3	22.5	22.1	22.6	23.2	23.5	23.9	23.2	23.2	23.5	10.23

Table 9. Domestic purchases index trend for meat products in Italy (adapted from ISMEA, 2005, 2008, 2010a).

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Fresh meat	100	87.3	88.1	88.2	90.3	90.0	87.6	86.2	86.9	86.4
Beef	100	80.5	88.0	88.7	92.7	93.1	91.2	88.4	88.0	86.4
Pork	100	97.5	96.0	97.5	99.2	102.7	98.3	97.1	98.1	99.1
Lamb	100	68.1	63.8	63.8	62.0	61.2	63.2	60.5	57.5	59.0
Poultry	100	89.5	87.5	85.1	86.5	79.3	77.3	80.7	84.3	84.8
Rabbit	100	73.9	73.9	72.1	75.3	77.6	69.0	72.5	74.9	75.3
Meat products	100	98.9	92.2	88.9	90.0	90.9	89.6	87.0	88.8	89.7
PDO meat products	100	102.2	94.4	92.0	87.7	93.1	96.5	94.4	95.4	92.3

Table 10. Domestic purchases index trend for milk products in Italy (adapted from ISMEA, 2005, 2008, 2010a).

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Milk	100	94.3	91.7	89.1	88.6	92.4	94.9	95.6	103.0	95.7
Fresh milk	100	93.0	94.0	86.0	85.6	89.1	94.4	94.9	99.5	102.2
UHT milk	100	96.4	93.1	92.3	91.7	95.7	95.3	96.2	96.4	95.7
Yoghurt	100	97.8	94.4	97.6	107.8	110.1	117.0	121.9	128.8	122.9
Butter	100	92.0	91.6	86.3	87.7	89.4	91.5	88.2	91.8	91.5
Cheeses	100	91.5	88.4	84.6	85.9	87.7	86.5	84.4	89.5	90.5
PDO cheeses	100	98.2	93.3	86.8	88.6	92.9	93.9	92.3	96.1	95.3

already underlined, probably due to different prices. Also the meat products purchases shows a good stability, although less than that of PDOs. For milk purchases the trend is similar, confirming the good performance of yoghurt and the stability of cheeses and mainly the PDO ones.

The EU registered labels market trend shows the consumer confidence to food labels for typical products. Moreover, the PDO, PGI and TSG labels are strategic tools to promote the consumer demand for quality products of animal origin, not only in Italy, but also in the other countries. The consumers consider the EU label system as a guarantee of the quality of the product and reputation of the origin territory, so the periodic market crisis for the products of animal origin (BSE, avian influence, dioxin feed contamination, etc.) affect only marginally the reputation, the demand and the consumer attitude to the food animal products labelled for their geographical origin (INDICOD, 2003).

Another important factor affecting the demand of the certificated products is the support that the policy makers could give to the PDO-PGI-TGS products and the marketing strategies implemented by collective organisations (such as consortia). Consortia in Italy are important pillars to obtain certification and contribute to collect a critical mass of production, for the generally limited dimension of farms or firms producing typical products. In such way, they could contribute in a more incisive way to help to follow common promotional strategies to support the consumers' purchases, to increase contractual power of their members, and also be considered a successful market tool being able to influence the consumers demand (Belletti *et al.*, 2007).

To understand the consumption trend of EU labelled products in Italy better, the following meat products and cheeses, worldwide known and representative of Italian production have been analysed in details:

- *Vitellone Bianco dell'Appennino Centrale*: fresh meat of pure-bred Chianina, Marchigiana or Romagnola (white coated breed) male or female cattle aged between 12 and 24 months, from the Central Apennines; a PGI registered on 20 January 1998;
- *Prosciutto di Parma*: aged raw pork ham; a PDO registered on 21 June 1996;
- *Prosciutto di San Daniele*: matured, dry-cured pork ham; a PDO registered on 21 June 1996;
- *Speck Alto Adige – Südtiroler Speck*: pig haunch, moderately salted, seasoned, and cold-smoked; a PGI registered on 13 June 1997;
- *Mortadella Bologna*: cooked pig meat sausage; a PGI registered on 18 July 1998;
- *Grana Padano*: hard cheese from half-fat cooked cow's milk, maturing slowly; a PDO registered on 21 June 1996;
- *Parmigiano Reggiano*: hard cheese from half-fat cooked cow's milk, maturing slowly; a PDO registered on 12 June 1996;
- *Pecorino Romano*: hard cheese from whole cooked sheep's milk; a PDO registered on 12 June 1996;
- *Gorgonzola*: soft blue cheese from whole uncooked cow's milk; a PDO registered on 21 June 1996;
- *Mozzarella di Bufala Campana*: 'pasta filata' cheese from whole raw water buffalo's milk; a PDO registered on 12 June 1996.

The domestic purchases trends for such products are reported in Tables 11 and 12, again as index on the first year (2000), except for the PGI fresh meat *Vitellone Bianco*, starting from 2003 to allow the product to enter the market and be known to consumers. The meat products show a good increasing purchasing trend in the last 10 year, except the *Prosciutto di Parma* with a light decrease. Instead all cheeses show a decrease in purchasing trend; some (*Pecorino Romano* and *Gorgonzola*) more than others.

Globally, in Italy the domestic purchases of PDO-PGI products in the last five years is around 15-20% of the total value, with meat products around 12% and cheeses around 32%, as reported in Table 13, outlining the great diffusion of the latter between the Italian consumers.

Table 11. Domestic purchases index trend for some PDO-PGI meat products in Italy (adapted from ISMEA, 2005, 2008, 2010a).

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Vitellone Bianco dell'Appennino Centrale	-	-	-	100	126.7	140.3	141.8	149.2	155.5	154.2
Prosciutto di Parma	100	105.4	94.5	87.9	83.0	89.0	91.9	85.8	91.4	98.5
Prosciutto di San Daniele	100	113.1	98.2	104.6	97.6	107.6	115.7	121.9	125.4	114.5
Speck Alto Adige	100	111.5	126.1	137.2	129.9	140.6	126.2	128.9	145.8	127.7
Mortadella Bologna	100	101.8	103.6	104.6	97.6	107.6	115.7	121.9	123.1	125.7

Table 12. Domestic purchases index trend for some PDO milk products in Italy (adapted from ISMEA, 2005, 2008, 2010a).

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Grana Padano	100	102.3	101.6	98.5	106.3	104.2	100.7	98.8	100.7	97.8
Parmigiano Reggiano	100	96.0	84.4	72.3	73.1	83.0	86.0	82.3	80.5	78.7
Pecorino Romano	100	78.3	77.9	76.8	84.2	83.1	85.7	81.8	73.8	64.1
Gorgonzola	100	87.3	84.4	81.5	79.4	77.7	74.5	71.0	69.4	67.9
Mozzarella di Bufala Campana	100	96.3	93.0	86.6	84.9	86.7	82.9	85.7	75.5	80.5

Table 13. PDO-PGI products domestic purchases trend in Italy (% on value) (adapted from ISMEA, 2010b).

Product	2005	2006	2007	2008	2009
Meat products	11.5	12.4	12.3	11.6	11.7
Cheeses	31.7	32.3	31.8	31.2	31.7
All kind of products	16.5	17.1	17.0	16.6	16.7

The small diffusion of PDO-PGI meat products in domestic purchases could be due to the preference of the Italian consumers, until recent years, for retail cut and product freshness on other labelled information (INDICOD, 2002). Only recently, the parameters for Italian consumers on which the choice of meat is based have become (on a scale of 5: 1 = not important at all; 5 = very important): authenticity (4.5), geographic origin (4.5), EU origin label (4.0), certification label (4.0), safety label (4.0), production method (4.0) and quality label (3.8). Parameters that have emerged having high importance are authenticity, geographical origin and certification label (Van Rijswijk *et al.*, 2008).

In Italy, the most important information on meat labels is the country of origin (84%), followed by slaughter date (82%), rearing (79%) and feeding system (76%) (Banterle and Stranieri, 2008). Moreover, also animal welfare is an important parameter for Italian consumers (77%). 41% are willing to pay more for this parameter, and 54% avoids eating game meat (Mayfield *et al.*, 2007). So, in recent years the Italian consumer pays more attention to what to buy and all applicable laws on traceability and food quality, which have proved to be a trump card also for security.

The changes in the current economic situation has resulted in a reduction in the consumer confidence: in fact, the confidence index that reached its minimum in 2002, seemed restarted in 2007, but in 2008 suffered a new and sudden decline as shown in Figure 2.

The economic recessions normally also affect the consumer prices, but this is only partially true in Italy for both meat and milk products. In fact, the consumer price trend indices from year 2000 to 2009, reported in Tables 14 and 15, show an increasing price for almost all products, although probably not as high as usual.

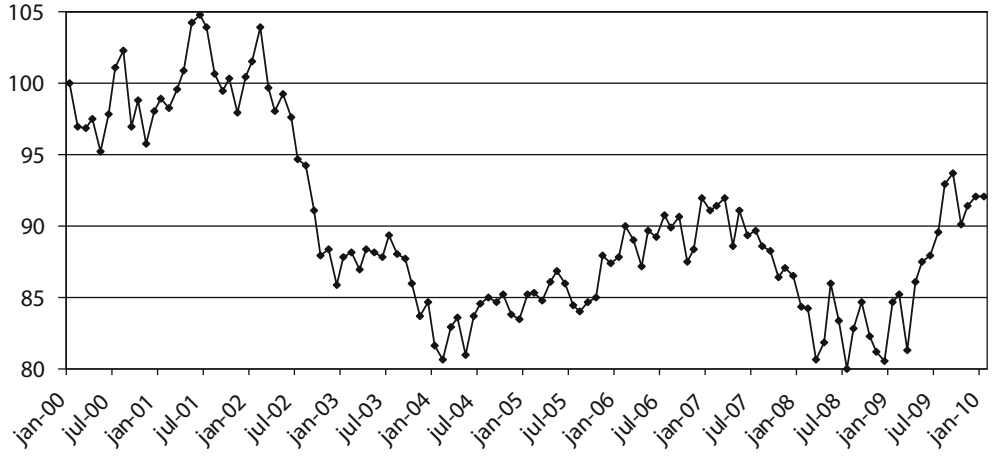

Figure 2. Consumer confidence index trend in Italy (year 2000 = 100) (ISAE, 2010).

Table 14. Consumer price trend for meat products in Italy (adapted from ISMEA, 2005, 2008, 2010a).

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Meat	100	110.8	110.9	109.5	108.7	109.8	115.0	117.4	125.9	127.5
Beef	100	116.0	112.1	108.3	108.3	112.1	119.7	121.1	123.6	125.3
Pork	100	115.4	109.6	109.1	107.5	109.2	114.5	113.9	115.2	114.7
Lamb	100	106.5	109.2	104.6	106.2	101.4	104.4	100.7	101.5	105.3
Poultry	100	91.5	104.6	108.7	105.4	101.9	106.7	119.4	120.6	121.1
Rabbit	100	119.4	112.2	108.8	109.8	108.9	115.3	105.7	-	-
Meat products	100	116.2	114.8	112.0	111.0	111.9	115.2	117.0	118.3	117.8
PDO meat products	100	119.2	111.1	109.0	109.7	108.3	109.7	110.9	107.2	108.4

Table 15. Consumer price trend for milk products in Italy (adapted from ISMEA, 2005, 2008, 2010a).

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Milk	100	114.0	115.9	114.8	113.5	112.6	114.0	117.6	120.5	131.8
Fresh milk	100	115.3	117.2	114.1	113.7	113.3	114.4	117.8	133.7	124.6
UHT milk	100	112.9	114.7	115.5	113.4	112.0	113.6	117.5	129.7	126.8
Yogurt	100	111.9	112.5	118.0	116.7	112.3	111.5	113.6	115.7	116.3
Butter	100	113.2	114.7	109.8	106.4	101.9	102.2	107.4	90.6	80.6
Cheeses	100	115.7	114.9	111.3	110.6	108.4	109.4	112.6	119.8	120.4
PDO cheeses	100	122.7	120.0	113.8	113.4	109.4	109.6	112.5	117.1	116.1

Conclusions

The consumer perception of food quality is a complex issue and depends on the consumers wishes. Food quality differs with different types of consumers and it is subjective, but in spite of this is possible focused some general aspects affecting the Italian consumers' attitude.

First, quality food products, both of animal and plant origin, are normally immediately identified by the consumers, not by commercial labels but by their name or logo (e.g. *Prosciutto di Parma*, *Parmigiano Reggiano*, etc.) and then by the origin mark (PDO, PGI, etc.). These products represent an important share of the market in Italy, which in economic terms can equal the share of unlabelled food products. In economic terms, there is no doubt that price is an important parameter in consumer choice, both for predisposition towards purchase, e.g. in periods of economic crisis, and for identifying intrinsic or extrinsic quality.

Second, the commercial trend of quality food products has been steadily increasing in the domestic market, and some products have good business opportunities on foreign markets. These trends, particularly for the animal products labelled for their geographical origin, could continue in the future, if they are supported by policy makers and structured private organisations operating for marketing.

Third, consumer propensity to quality food products is good and seems to indicate a strong and growing demand in coming years. The demand strength is often supported by an intangible dimension of the quality food. Actually, only the sensory properties are directly perceptible to consumers, whereas health effects, history, traditions, technology, etc. are invisible aspects. Anyhow, they affect the consumers' attitudes to food quality products, also for the coming years.

Finally, from a farmer point of view, the productive differentiation obtained by means of origin labels provides an important source of income and competitiveness in the field of animal production. This, perhaps, is the most important consequence of the growing consumer attitude to buy food quality products, and not only of animal origin.

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Consumer attitudes towards meat consumption in Spain with special reference to quality marks and kid meat

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Abstract

The consumption of meat in Spain is higher than the EU average. In 2008, meat consumption was 65.3 kg per capita, with fresh meat accounting for 48.9 kg, of which only 5.6 kg was quality certified. Meat consumption is higher in the north of Spain than in the south. Consumption of poultry (16.1 kg per capita) and pork (14.1 kg per capita) is predominantly as fresh meat. In 2008, the consumption of lamb/kid meat (sheep and goat are combined in the statistics) was only 3.4 kg per capita. Lamb/kid meat is considered expensive (6.8 on a scale from 0 to 10), and is eaten with family and on special occasions. The main reason it is purchased is its taste. Consumers think (53.4%) that Spanish production of lamb/kid meat is environmentally friendly. In the case of kid meat, the estimated consumption is 0.5 kg per capita. Spanish goat stocks (the second-largest in the EU, after Greece) are mainly in the south, but the highest consumption of kid meat is in the north-east. However, there is no Protected Geographical Indication (PGI) for kid meat, only a regional quality mark has been registered. A consumer test was carried out in Seville (southern Spain) to ascertain consumers' opinions where there is no tradition of kid meat consumption. The effect of breed, carcass weight (heavy or light) and lactation (natural or artificial) on the meat quality of suckling kids from seven Spanish breeds was investigated. In a home test consumers evaluated all sample types in a balanced design. There were some differences, such as breed effects for light kids but not for heavy kids. At the end of the test, some consumers wanted more meat and asked where it could be bought, while others did not want more.

Keywords: goat meat, consumers' assessment, consumer habits, taste panel

Introduction

Before the start of conventional agriculture around 10,000 B.C., the killing of animals for food was one of prehistoric humans' most important social activities. Although a small but increasing percentage of the population has switched over to meat substitutes for ethical reasons, meat and meat products still hold a special position for nutritional and socio-cultural reasons. Meat is an excellent source of high-quality protein that contains all the essential amino acids necessary for physical well-being and proper mental and intellectual development. It also contains large amounts of minerals (iron, magnesium) and essential B vitamins. Throughout recorded history, the consumption of meat has been a social and financial status symbol. As a nation industrializes, its meat consumption increases as people improve their social or financial status. However, as shown by Mili *et al*. (1998), in developed countries demand is explained less by income and price than by other qualitative factors such as preference, value and consumer attitudes.

In recent years, the meat market has changed, due to several crises in succession (such as outbreaks of diseases generating alarm among consumers). This has been reflected in the development of prices and outputs. These factors have changed the basis of demand for meat and led to significant changes in consumer behaviour, placing more emphasis on certain product attributes such as quality and health benefits. In the future, however, forecasts show that extrinsic cues in perception of meat quality, such as origin and place of purchase will play an increasing role (Grunert, 2006).

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Meat consumption in the European Union

Meat is traditionally considered a basic component of the diet of Western societies. The average consumption of meat (including meat products) of EU citizens amounts to 94.7 kg per capita, which is higher than in the world as a whole, where the figure is around 40 kg per capita. As shown in Figure 1, the volume and pattern of consumption differ between countries. Cyprus has the highest recorded meat consumption in the EU, with 144 kg per capita per year. Spain has the second-highest consumption, with 122 kg per capita.

In 2008 in the EU (EC, 2010), the highest annual consumption of all meats was recorded for pork, with 42 kg per capita per year, higher than the combined total of poultry (23.1 kg), beef (16.6 kg) and sheep and goat meat (2.4 kg). Forecasts up to 2014 indicate continued growth in poultry consumption with a corresponding decline in beef and sheep and goat meat consumption. The consumption of pork is also expected to grow, but at a lower rate than poultry. Spain, Austria, Germany, Denmark and Belgium reported the highest per capita consumption of pork. Spain also recorded the highest per capita consumption of poultry.

In 2006, a Euro barometer survey investigated consumers' attitudes towards agricultural topics on which the public would like more information (EU-25). The results showed that these were the safety of food products (50%), environmental effects of farming (30%) and welfare of farm animals (25%). Consumers also answered that their main reasons for buying food were health (50%), good quality (48%) and taste (35%). Other factors raised by at least 10% of respondents were the levels of consumption of fat and meat, among others, while limiting overall calorie intake was also mentioned. Consumers appear to accept that production costs may be higher in order to achieve higher levels of animal welfare. According to EU policy, the same animal welfare/protection conditions must be respected for imported products as for foods produced inside the EU.

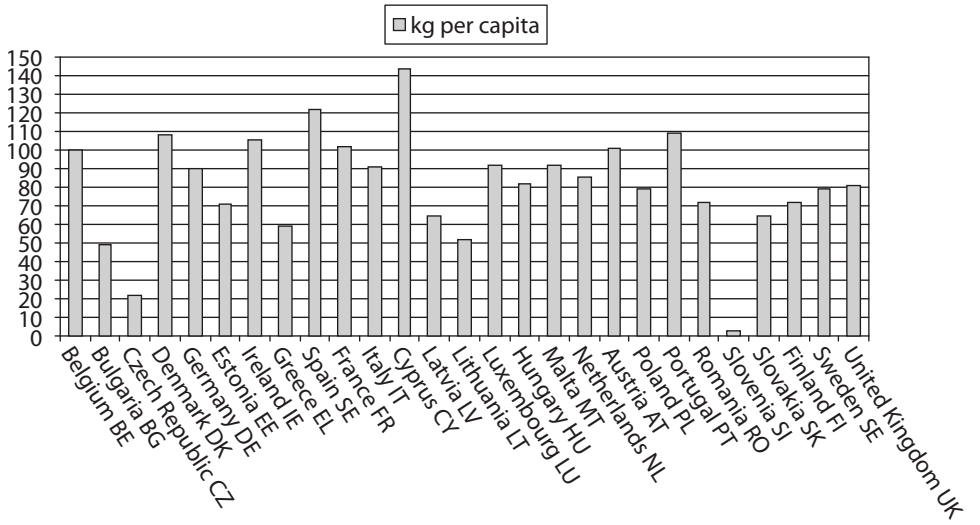

Figure 1. Gross meat consumption in EU-countries per inhabitant (EC, 2010). Data concern country (year): DK, IT (2006); SI (2008); ES (2004); DE, SK, NL, PT, UK, FR, LV, CY, EE, HU, LU, RO, BG, AT (2007); LT, CZ, IE (2002); FI, BE (2005); PL, MT, SE (2003).

Meat consumption in Spain

Consumption

In Spain, meat and meat products play a huge role in the dietary patterns of households. Both consumer data and expenditure data place meat among the most in-demand types of food. Thus, according to data from 2009 (MARM, 2010), the foods with the greatest weighting in total expenditure were meat and fish. Fresh meat and processed meat accounted for 9.8% and 6.1% of total expenditure on food in Spain respectively; part of the reason for this is that these products are more expensive than other foods.

In 2008, total meat consumed in Spain, taking into account both home consumption (50.6 kg) and consumption outside the home (14.7 kg), was 65.3 kg per capita. Of this, 38.4 kg was fresh meat consumed at home (only 5.9 kg was quality labelled), 0.9 kg was frozen meat and 11.4 kg was meat products. It is noticeable that since 1995 there has been a significant increase in meat consumed outside the home. Nowadays, it is estimated that meat consumed at home accounts for around 78% of all meat consumed with 22% consumed outside the home. Considering fresh, processed and frozen meat consumed in households and outside, home total meat consumption accounted for over 20% of total expenditure on food.

An increase in meat consumption has recently been recorded, especially frozen and processed meat. In 2008 (MARM, 2010), fresh meat represented 76.3% of total meat, as compared to 22% of processed meat and 1.7% of frozen meat. In many households (45.2%), when fresh meat is bought, part is consumed fresh and part is frozen.

The largest quantity of fresh meat consumed annually is poultry (13.0 kg per capita, 91% chicken), followed by pork (11.6 kg per capita) in second place (this differs from the consumption pattern of the EU as a whole because in Spain, much pork meat is consumed as meat product, for instance dry-cured ham). In the third place is beef consumption with 7.2 kg per capita followed by sheep and goat meat (combined in the statistics), with consumption of around 2.5 kg per capita. Over the past 20 years (1987-2007), consumption of pork has risen considerably while consumption of chicken has declined. In the home, the per-capita consumption of beef, chicken and sheep meat has fallen over the years while outside the home, the greatest increase in consumption has been for processed meat and the smallest for sheep and goat meat.

Meat consumption remains fairly constant for most of the year, although it peaks in December (due to an increase in some, though not all, kinds of meat), despite an increase also in price. As with so many other products, consumption falls in summer (especially August).

The meat most in demand in Spain is pale, lean and aged for only a few days. This is in contrast to the meat preferred in the north of Europe, for instance, where redder meat from older animals is preferred.

Distribution

As shown in Figure 2, there are significant regional differences in consumption. Consumption is higher in the north than in the south, with Castilla y León, Aragón and Castilla la Mancha above the national average, and the Canary Islands and Andalusia below it. There are also differences between regions in the type of meat consumed: beef is more important in the north, while in the Mediterranean area there is greater emphasis on chicken consumption. Finally, Extremadura and Andalusia show a higher relative consumption of pork.

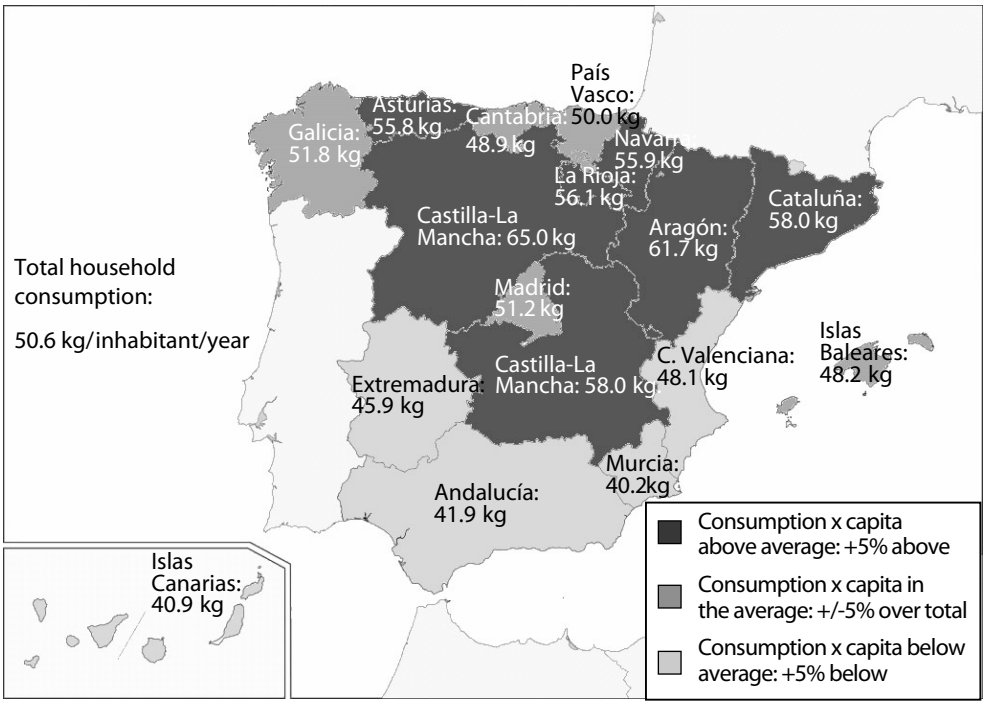

Figure 2. Meat household consumption in Spain in 2008 (MARM, 2010).

Consumers' attitudes

Total meat consumption (MARM, 2010) is higher in households in which the housewife is aged between 50 and 65, in those with more than three members, in those with medium-age or older children and in those consisting of adult couples with no children. Also, if the person responsible for shopping does not work, meat consumption is higher. So, one possible reason for this might be the time required for cooking. The highest consumption is recorded in small towns (less than 10,000 inhabitants).

For 38.7% of Spanish consumers, traditional shops remain the preferred place to buy meat, because of confidence in the butcher (56.5%) and quality of produce (49.6%), while price (21.5%) and variety of products (11.7%) are considered less important. Nevertheless, other outlets such as supermarkets are increasing their market share (33.4% of the total). Retailed meat (83.9%) is still preferred to packaged meat (16.1%), but the latter is on the increase, mainly among young people, as it is a way of saving time.

The purchase of meat is generally planned (62.3%). The most important factors affecting the final choice are price (55.7%) and quality (51.5%). The reasons for eating meat are its taste (64.7%), as has been reported in other studies (Verbeke and Viaene, 1999; Richarson *et al*., 1993), and the desire for a balanced diet (39.7%). Meat is consumed in households 11 days per month on average, most often by people aged over 65. By sex, men consume more beef and more chicken than women. According to respondents, the percentages choosing various meat categories are chicken 86.5, beef 80.4, pork 60.0, sheep and goat meat 36.1, rabbit 31.2 and other 24.4. Most consumers (88.5%) prefer Spanish meat because of its taste (44.4%), and because of confidence and safety (30.3%). As reported by Bernues *et al*. (2003) for beef and lamb, information on the origin/region of production and expiry (use by) dates were the most important items of information on the label.

Meat is considered an expensive food, beef and sheep/goat meat being the most expensive. According to consumers' opinions (MARM, 2010), meat mainly provides protein and iron but is included in the diet out of habit. Meat is generally considered healthy, but only if not consumed excessively. In particular, chicken (7.0 on a scale from 0 to 10) was considered the healthiest meat, while pork (5.6) had the lowest score. Sheep and goat meat were given an intermediate score of 6.4. Safety emerges as the most important factor, especially for beef and pork (Verbeke and Viaene, 1999). Factors such as lack of time and more women working outside the home have changed lifestyles and consumption patterns.

From the industry's point of view, more products (6.8) and recipes (6.4) available to consumers would increase meat sales. Positive aspects such as semi-processed meat products, 'ready-to-eat (RTE)' products, enhanced consumer confidence via the development of quality marks or traceability of animals and products, and attention to immigrants as a separate segment of the market are growth opportunities for the industry.

Sheep and goat sector in the EU and Spain

Sheep and goat production

The 13.5 million goats the EU-27 in 2008 (EC, 2010) were unequally distributed across countries. Greece had 37.1% of the total number while Spain ranked second with 22.1%, ahead of France, Italy and Romania. These five countries account for over 80% of the goats in the EU.

In Spain, goats have often been reared together with sheep, sharing areas and a socioeconomic context, but the goat sector represents only 5% of the combined sheep and goat sector. In the EU, sheep and goat production have consistently decreased over the years, mainly as a result of partial decoupling of direct payments, structural change accompanied by the abandonment of production, lower output in Spain and France, probably stemming from higher mortality, and lower productivity rates following the outbreaks of bluetongue disease, although this is more significant in sheep than in goats. In 2008, Spanish livestock production from sheep/goat meat sector accounted for 3.3% of Spain's Final Agricultural Production and 9.2% of Final Livestock Production (MARM, 2010). In 2008, goat meat production was 9,253 metric tons. Goat meat output has fallen substantially in recent years, as shown in Figure 3.

Although the goat sector's contribution to total livestock production is very low, the goat is an essential part of certain landscapes and ecosystems in Spain and large areas of Mediterranean Europe, in order to maintain their natural landscape. In fact, a large proportion of production is located

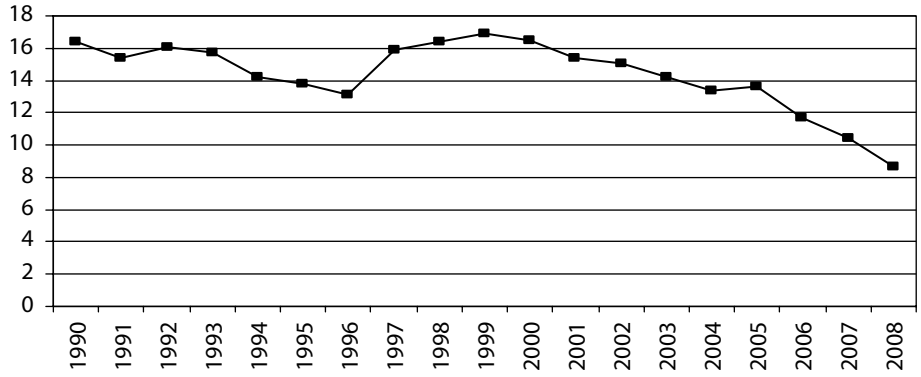

Figure 3. Evolution of goat meat production (million of kg) in Spain (MARM, 2010).

in disadvantaged and mountainous areas, where it generates income that improves the financial livelihoods of farmers. However, excessive environmental dependency, small or non-existent commercial structure, production system deficiencies and limited product marketing result in low numbers of goats in comparison to other meat producing animals (Caballero de la Calle and Calle, 2009). At present, intensification of livestock for production of milk is recorded in some countries, such as Spain and Greece, following in the footsteps of France.

In general, as shown in Figure 4a, goats are concentrated in the Canary Islands and the south of Spain, mainly Andalusia (the region with by far the highest number). Figure 4b shows the percentage of goat meat produced in each region, corresponding to the slaughter of animals. An imbalance between the locations of the animals and areas of meat production can be seen (Figures 4a and 4b). This means that live animals are transported over long distances for slaughter. This has been limited in

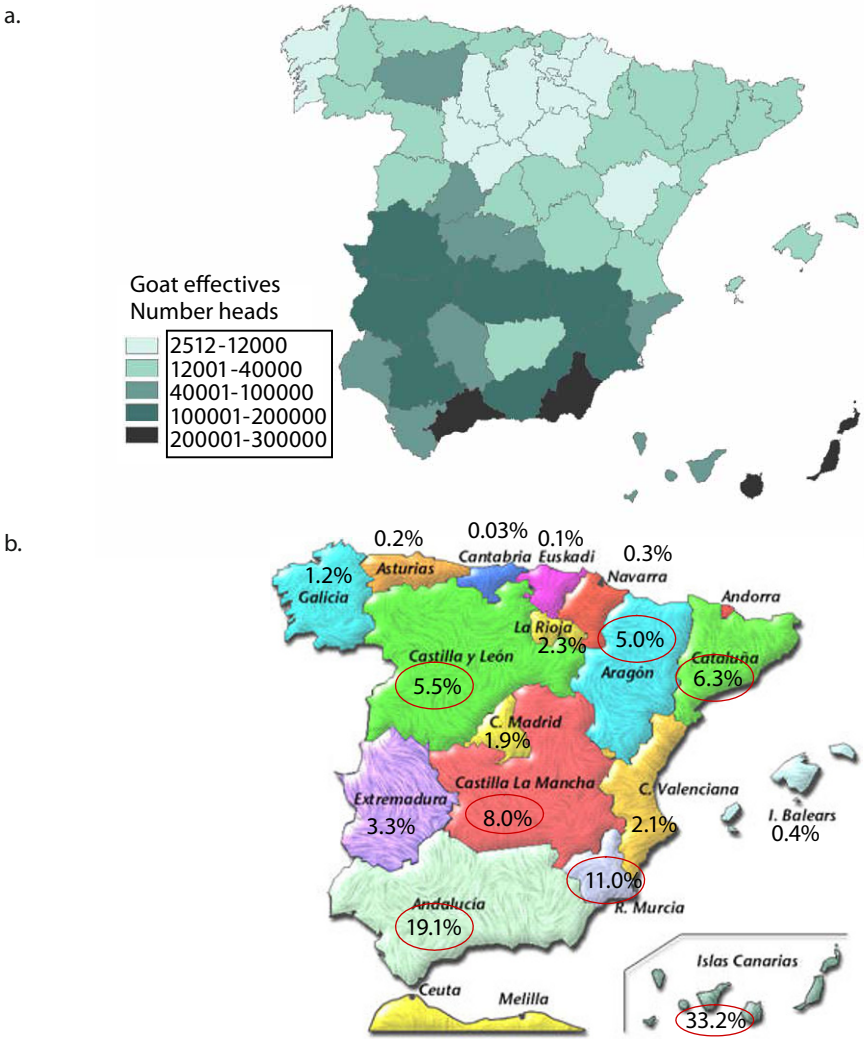

Figure 4. a. distribution of goat (number of heads); b. meat production (% per region) of Spanish goat in 2008 (MARM, 2010).

recent years in part due to current legislation on animal welfare during transport (European Council Regulation (EC) 1/2005).

In 2008 (MARM, 2010), 442 metric tons of goat-meat were imported into Spain, mainly from countries within the EU. Of this, 266 metric tons were exported to other EU countries. The volume of goat-meat that moves in foreign trade is insignificant compared to the volume of sheep-meat.

Sheep and goat meat consumption and consumer attitudes

EU sheep/goat meat consumption has fallen as a result of low supplies, relatively high prices and weakening domestic demand. Furthermore, both sheep and goat production and per-capita consumption of sheep/goat meat are expected to continue to decline over the next few years. In the EU, self-sufficiency in 2008 was 78.9%, while in Spain it was 106.4% (mainly due to the sheep-meat).

In Spain, the average consumption of sheep and goat meat has declined by about 50% in the last six years, in parallel to a fall in production. In 2008, combined sheep and goat meat consumption was 3.4 kg per capita (2.5 kg per household, Figure 5). Goat meat consumption can be estimated at less than 0.5 kg per head per year, with demand concentrated in particular areas. There are also major differences between regions, with higher consumption in central and north-eastern Spain. Compared to other meats, sheep/goat meat is a relatively small sector. In 2008, households spent more than €25.60 per person on this type of meat, which represented 1.7% of total expenditure on food. Sheep/goat meat consumed represented 5.5% of total meat consumed in households. Thus there is undoubtedly a potential for increases in consumption, which would provide opportunities for rural communities to generate greater incomes and thus improve the livelihoods of these small livestock farmers (Juma *et al*., 2010).

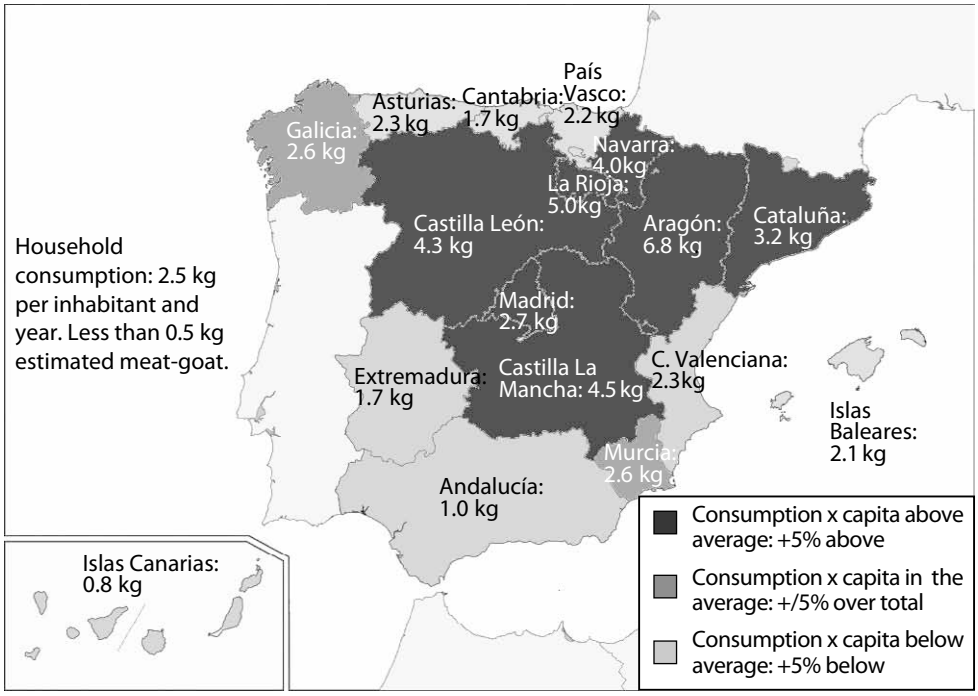

Figure 5. Household consumption of sheep and goat meat in Spain in 2008 (MARM, 2010).

The goat carcasses preferred in Spain come from suckling kids. This is an animal fed only on milk and slaughtered at live weight 8-10 kg, aged 35-45 days. In 2008, the average weight of goat carcasses produced in Spain was 11.1 kg, with most carcasses (82%) classified as suckling kids.

Lamb and kid meat play an important role in particular festivities, especially Easter, Christmas and those of non-Christian faiths (Figure 6). Consumption is twice as high in December as in any other month of the year. This peak is clearly linked to Christmas, and has a huge effect on the seasonal patterns of production, prices and imports.

Lamb and kid meat are appreciated by consumers in the EU due to their natural origin, flavour and taste. As can be seen in the consumption panel in 2008 (MARM, 2010), meat with less need for preparation was generally preferred. Particularly, consumption of sheep and goat meat was higher in households in which the house wife was aged over 65 and retired. Half of the consumers that eat these meats think that the Spanish meat production system benefits environmental protection (MARM, 2010). In the opinion of consumers, roasting is the commonest method of cooking this meat, in addition to grilling, while stewing is much less common.

Quality marks in Spain / EU and consumer attitudes to quality labels

Quality is a subjective matter in any area of life, but consumers demand high-quality products. Because of this, quality attributes in trademarks are related to specific meat characteristics, often linked to geographical origin, production area and animal breed. Recently, others cues have become important to consumers, such as high environmental or animal welfare standards, and even processing, preparation, presentation and labelling in ways that enhance the attractiveness of the product to consumers.

Quality labels offer benefits for farmers/food producers and for consumers. A Protected Geographical Indication (PGI) identifies a product as coming from a given geographical territory, and testifies to a link between a given quality, reputation or characteristic of the product and its geographical origin. To receive PDO (Protected Designation of Origin) status, the entire product must be traditionally manufactured (prepared, processed and produced) within the specific region and thus acquire unique properties. PGI is therefore more appropriate to non-processed products while PDO is more suited to processed products. Such foods possess exceptional qualities, such as taste and flavour. Protection of geographical indications is not only necessary within the EU; measures are also needed to protect

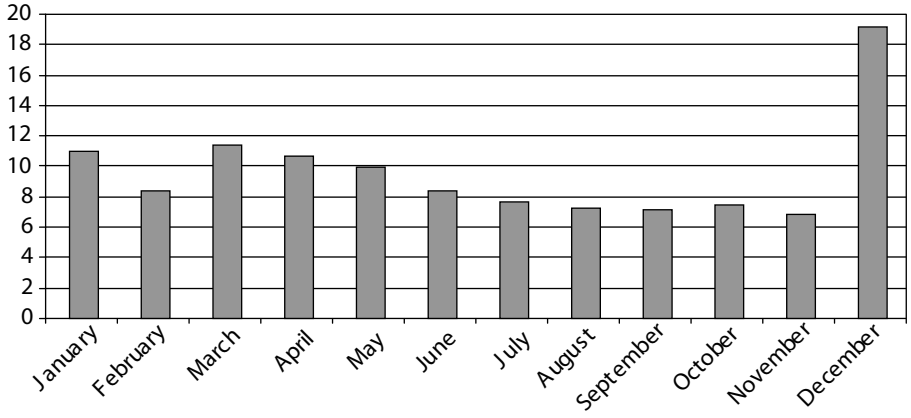

Figure 6. Evolution of the sheep and kid meat consumption (millions of kg) by month in households in Spain in 2008 (MARM, 2010).

traditional products' names from around the world and inform consumers about the authenticity of products.

There is a great diversity across the EU in meat products, and these are often part of local, regional and national cultural identity. In the EU, there are 104 PGIs, of which 28 are quality-labelled lamb meat (in Spain, there are 4 approved and 2 applied for) and 5 of kid meat (all in Portugal). In Spain, in the group of foods of animal origin (see Table 1), there are 30 PGIs, 17 of which are for fresh meat, mainly beef. In the EU, there are 651 PDOs, whereas in Spain there are 36 PDOs (26 of cheese, 5 of cured ham, two of honey, two of butter and one of fish).

In Spain in 2007 (MARM, 2010), meat and meat products (excluding cured-ham) represented 19% of the monetary value of sales of products covered by PDOs and PGIs, behind cheeses (21%). Cured-hams were in third place with 15% of the monetary value. In the PGIs of fresh meat, sheep meat accounted for 10% of the monetary value.

In a Consumer Panel Study carried out by MARM in 2008, many consumers (84.4%) were unaware of the existence of any quality label and most of them (53.8%) did not know what a label was. This lack of knowledge increased with age of those polled. Nevertheless, many felt that labelling was important (7.7%) and necessary. In fact, using a ten-point scale, consumers gave 7.7 to the fact that the sale of lamb/kid meat was accompanied by labels or quality marks. The 70% of the consumers who knew about quality labels were willing to pay more for meat purchased from a traditional butcher, from whom they expected to obtain better quality, than for meat bought at a supermarket. Van Trijp *et al*. (1997) reported that labelling of meat by itself is not enough to create product awareness, and that promotion is also needed. In some of our previous studies (Campo *et al*., 2006), we were able to ascertain that consumers can be influenced in their acceptance of meat by information given in the label (Panea *et al*., 2009). The gradual appearance of quality marks that guarantee quality and food safety therefore seems to be the key for the future.

In Spain, there are major differences between regions with respect to the consumption of labelled meat (average 5.96 kg per capita per year). Asturias has the highest rate of consumption of this kind of meat (10.7 kg), together with northern and central Spain, while Andalusia is the region with the lowest consumption (2.5 kg), together with the east and south of the country.

Although Spain is among the leading European producers of goat meat, there is a significant lack of knowledge about the production of native Spanish goat breeds (Campo *et al*., 2007). Also, there is no PGI: only a regional quality mark has been registered. Nevertheless, meat from suckling animals is highly valued in Spain, as shown by Webb *et al*. (2005) for kid meat in general. It was demonstrated by Cilla *et al*. (2007) that the overall acceptance of suckling kid meat was above 4 on an 8-point scale, comparable to high-quality products such as Spanish PGI lamb. There is therefore a potential market for suckling kid meat in the same way as there is for suckling lamb. This potential market

Table 1. Quality labels of animal origin foods in Spain (MARM, 2010).

Quality label	PGI	PDO
Fresh meat	17 (3 requested)	-
Cured ham	1	5
Sausages and meat products	8 (3 requested)	-
Cheese	1	26 (3 requested)
Honey	1	2
Butter	-	2
Fish and mollusc (mussel)	2	1

is not being satisfied with an adequate supply of suckling kid meat, and it is not easily found by consumers, especially consumers who buy in supermarkets and prefer packaged meat.

Consumer assessment of kid meat in a home test

In order to find potential solutions to the current situation of the goat sector in Spain, we conducted a study regarding several aspects of kid meat quality, including taste tests. A consumer test was conducted in Seville (southern Spain), where there is no tradition of consumption of kid meat. The effect of breed, carcass weight (heavy ~7 kg or light ~4 kg) and lactation (natural or artificial) on the quality of meat of suckling kids from seven Spanish goat breeds (*Murciano-Granadina*, *Malagueña*, *Blanca Andaluza*, *Blanca Celtiberica*, *Negra Serrana-Castiza*, *Pirenaica* and *Moncaina*) was investigated.

A home test was carried out by 15 families with at least three members each, over 14 consecutive weeks. Consumers tested all types of samples in a balanced design and were asked for an overall opinion on taste, tenderness and juiciness. A significant family effect was found. There were some differences between breeds for light kids. Thus *Blanca Celtiberica* registered the lowest values for all variables, whereas *Malagueña* fed with artificial milk was evaluated as the most tender and juiciest meat, with other breeds obtaining intermediate values. However, no differences between breeds for heavy kids were found.

In general, ratings for parameters of taste assessments were high, around 7, leading to high acceptance of this type of meat by consumers, in contrast to their initial opinion of this type of meat, which was mainly due to a lack of knowledge. At the end of the test, some consumers wanted more of such meat and asked where they could buy it, while others did not want any more.

Conclusions

- Work is needed to protect traditional products' names from around the world and inform consumers about product authenticity.
- To increase meat consumption, supply and demand must be matched, perhaps also including RTE (ready-to-eat) products.
- It is important to increase efforts to define market supply through suitable labelling.
- Labelling of meat is in itself not sufficient to create product awareness. It is important to inform consumers about production systems and cooking methods.
- Finally, suitable promotion and marketing of meat is essential to increase consumption.

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Consumer behaviour towards organic food in Portugal

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Abstract

This paper reports the results of an analysis of Portuguese consumer behaviour towards organic food products (OFP). For this purpose, a literature review on quality and food safety of OFP was carried out and a consumer survey was implemented, with data collected by means of personal interviews in the capital city of the country. The data were analysed using descriptive statistics and a comparison of gender and age groups was made using chi-square tests and analysis of variance. Factor analysis was used for the attitudinal scales in order to reduce the number of variables and to search for dimensions underlying these attitudes. The results show positive consumer attitudes towards OFP. However, its consumption is much lower than could be expected from these attitudes. Intentions to buy OFP are quite high, suggesting that these products might obtain a substantial market share in the future. This is an encouraging sign for potential OFP producers, who might compensate for the costs of moving from traditional to organic farming with an increase in market share.

Keywords: organic food products, consumer behaviour, attitudes, Portugal

Introduction

Due to increasing consumer dissatisfaction with conventional food and increasing environmental concerns about intensive production processes (Toscano, 2006), consumer behaviour towards organic food products (OFP) has attracted growing research attention (Lucas *et al.,* 2008).

In spite of the fast evolution of organic farming in Portugal (Lucas, 2004), the market is still a niche market. In Portugal, the area which is organically cultivated is growing, with olive groves and cereals occupying the highest proportion of land. An increasing amount of organic food is sold by food retailing outlets and their market share is currently of 2% (Lucas *et al.,* 2008).

Over the past few years, four main factors which may have contributed to the growth of the OFP market in Portugal are:

1. an increasing level of consumer knowledge about OFP, in parallel with increasing dissatisfaction with conventional food together with environmental concerns;
2. higher levels of consumer trust in organic processes and in the certification labels of the products;
3. increasing demand for OFP, especially due to the recent European food crisis and scandals; and
4. the involvement of large food retailers in OFP (Lucas *et al.,* 2008).

The present paper reports research carried out within a project of the University of Évora. The aim of the study was to analyse the state of the art concerning OFP and to analyse the current status of consumer behaviour towards organic food in the Portuguese market. Additionally, the study analysed the differences between age groups and genders in relation to behaviour and attitudes in respect of OFP.

The structure of the paper is as follows: the next section presents a literature review on the issues of quality, safety and consumer behaviour towards organic food products; then a brief description of the survey method and some sample characteristics are provided. This is followed by the results of the analysis. In the final section, the more relevant conclusions of the study and some marketing recommendations are discussed.

Literature review

A large body of research has scrutinized different consumer interests and behaviour towards organic food (e.g. Brunsø and Grunert, 2002; Ekelund, 1989; Lockie *et al.*, 2004; Magnusson, 2004; Magnusson *et al.*, 2001, 2003; Shepherd *et al.*, 2005; Squires *et al.*, 2001; Stolz *et al.*, 2011; Tobler *et al.*, 2011; Wandel and Bugge, 1997; Wilkins and Hillers, 1994).

Perceived benefits of organic food products

Different studies, sometimes with ambiguous results, have compared OFP with conventional foodstuffs (AFSSA, 2003; Bourn and Prescott, 2002; Bruce and Lindskog, 2003; Finesilver *et al.,* 1989; Heaton, 2001; Lampkin, 1990; Saffron, 1998; Toledo *et al.*, 2002; Vetter *et al.,* 1987; Williams, 2002; Woese *et al.*, 1997). Specifically, regarding quality, Finesilver *et al.* (1989), Woese *et al.* (1997), Worthington (1998), Brunsø and Grunert (2002) and Midmore *et al.* (2005), revealed some differences between conventional products and OFP. Other studies in the literature review (Brandt and Molgaard, 2001; Diver, 2000; Lea and Worsley, 2008; Williams *et al.*, 2000; Woese *et al.*, 1997; Worthington, 1998, 2001) have been inconclusive or cautious in their conclusions, pointing out the poor quality and wide variation in the evidence that OFP are better than conventional food or have less environmental impact. All have dealt with comparisons of nutritional value and, consequently providing none or only isolate results regarding safety characteristics of the produce.

Consumers have positive attitudes towards OFP (Grankvist and Biel, 2001) and OFP have a generally positive image due to their perceived health value, safety, sustainability and naturalness (Beharrell and Macfie, 1991; Gil *et al.*, 2000; Lüth and Spiller, 2005; Ricquart, 2004; Thompson and Kidwell, 1998; Tregear *et al*., 1994; Verhoog *et al.*, 2003; Zanoli, 2005; Zanoli and Nasppetti, 2002, 2004). The most common beliefs associated with OFP are that they are 'more expensive' and 'healthier' (Magnusson, 2004; Stolz *et al.*, 2011).

Nevertheless, the proportion of regular purchases of OFP is low (Alvensleben, 1998; Grankvist and Biel, 2001; Roddy *et al.*, 1996; Wandel and Bugge, 1997). Also Magnusson (2004) found that, in spite of the positive attitudes towards OFP, few consumers purchase them on a regular basis. Some studies revealed that these discrepancies between preferences and behaviour might be explained by the higher prices of OFP (Alvensleben and Altmann, 1987; Jolly, 1991; Roddy *et al*., 1996; Tregear *et al.*, 1994) and by their limited availability (Jolly, 1991; Roddy *et al*., 1996; Tregear *et al*., 1994; Wandel and Bugge, 1997). Consumer satisfaction with conventional foods can be another reason for the non-consumption of OFP (Ekelund, 1989).

Williams *et al.* (2000) found that consumers believe that OFP have better sensory attributes. However, research involving a sensory panel of trained consumers recognized little taste advantage in organic tomato, carrot and wheat (Haglund, 1998). Nor did Jonsäll's (2000) study find any perceived sensory superiority in OFP. Johansson *et al.* (1999) concluded that the information that a product is organically produced induces consumers' preferences. However, it has also been found that there are no strong correlations between consumer positive beliefs about and the choice of OFP, and that the organic label is not a salient choice cue (Grankvist and Biel, 2001).

Wier *et al.* (2005) investigated the organic food markets in two European countries, Great Britain and Denmark, identifying their main differences and similarities. The focus was on consumer preferences and priorities, labelling schemes, and supply and sales channels as a basis for assessing market stability and prospects for future growth. Results showed that consumer confidence is sustained by organic labelling schemes and that organic food purchase decisions are primarily motivated by 'private good' attributes such as freshness, taste and health benefits. Attributes, such as environmental protection, animal welfare, small-scale production and local supply are less important for the majority

of consumers. More recently, Stolz *et al.* (2011) observed differences between two other countries. German purchase preferences were determined by chosen socio-demographic variables (household size, having children under 18 years old and income class) while no socio-demographic impact was found in Switzerland, where the domestic production is generally important to Swiss consumers (Stolz *et al*., 2011).

Buying motives and attitudes towards organic food products

Various considerations have to be taken into account when analyzing consumer choices regarding OFP. Torjusen *et al*. (2001) studying the OFP decision-making process found that frequent buyers are more concerned with OFP characteristics, search for more information and think more about their choice than less frequent buyers. From the purchase decision-making perspective, conventional-plus products compete with conventional rather than with OFP (Stolz *et al.*, 2011), and consumers are focused selectively on individual criteria when choosing certain OFP (Stolz *et al.*, 2011).

The relevance of attitudes as determinants for preferences varied among products according to consumer beliefs towards specific OFP. Stolz *et al.* (2011) found that consumer attitudes towards the criterion 'from pasture-raised cows' was significant in relation to organic milk choice, but not in relation to organic yoghurt choice, given that yoghurt is more processed than milk. Thus, beliefs significantly determined the choice and OFP with health claims are preferred by consumers (Stolz *et al.*, 2011). Attitudes towards specific attributes such as health, safety and quality (Stolz *et al.*, 2011), food scandals (Zanoli *et al.*, 2004) and environmental concerns or reduced meat consumption (Jungbluth *et al.*, 2000) determined consumer preferences. However, they show a lack of knowledge about the environmental relevance and willingness to adopt OFP consumption in their behaviour (Tobler *et al.*, 2011). Willingness to consume OFP was increased when consumers attached importance to the naturalness and healthiness of the food (Tobler *et al.*, 2011).

Regarding the motives for purchasing OFP, Schifferstein and Ophuis (1998) concluded that health is a more important motive for occasional consumers than for heavy consumers. Frequent consumers purchase OFP for health as well as for environmental reasons. Magnusson (2004) concurred, stating that the consumers' decision-making for OFP purchase is mostly based on the perceived consequences of OFP on human health and on the protection of the environment. However, in this study, perceived positive health consequences appeared to be a stronger motive for purchasing OFP than the environmental benefits. Because consumers' willingness to perform different OFP consumption patterns might be influenced by different motives, persuasive campaigns should take that into account when encouraging consumers to adopt this type of behaviour (Tobler *et al.*, 2011).

Furthermore, the literature indicates a large group of occasional consumers who only buy small amounts of organic products per purchase. Michels *et al.* (2003) compared these occasional consumers with heavy buyers and, particularly, with those who prefer to buy in organic food shops. Overall, these studies indicate that this consumer group largely corresponds to the average household with respect to socio-demographics as well as to dietary patterns. Nevertheless, the group can clearly be distinguished from customers of organic food shops (Michels *et al*., 2003).

These studies revealed the following purchasing patterns of occasional buyers:

1. they are motivated more by hedonistic (i.e. taste) and health reasons, while regular buyers stress more the positive environmental effects associated with organic production;
2. they show a clear preference for buying in supermarkets as opposed to buying in organic or health food shops;
3. they are less knowledgeable about OFP market characteristics such as certification labels, specific organic brands or appropriate shopping locations;
4. they are generally younger than regular buyers;

5. when they buy OFP, they buy cereals, fruits and vegetables, while regular buyers predominantly choose organic dairy products or meat and;
6. they show less willingness to pay a price premium for OFP and show little knowledge of prices (overestimation of organic food prices) (Michels *et al*., 2003).

Finally, concerning OFP perceived value, several studies may be referred to. Huang (1996) and Thompson and Kidwell (1998) analysed consumer preferences for organic farming in relation to their willingness to accept sensory defects and Van Ravenswaay and Blend (1999) discussed purchase probabilities and demand functions for regular, eco-labelled, and unlabelled apples. Some other studies accessed consumers' willingness to pay a price premium for organic or safe products (Boland *et al.*, 1999; Gil *et al.*, 2000; Govindasamy and Italia, 1999; Loureiro and Hine, 2002; Ott, 1990; Underhill and Figueroa, 1996; Weaver *et al.*, 1992; Zanetti, 1998) or, more recently, consumers 'willingness to adopt ecological food consumption' (Tobler *et al.*, 2011).

Research methods

To reach the defined goals for the study, two phases were involved – an initial qualitative, exploratory phase, followed by a quantitative survey. First, to obtain comprehensive information on the production and commercialization of OFP and on actual consumption preferences, qualitative interviews with experts in the field were conducted. Information on quality and safety of OFP was also explored in these interviews. The interviewees were retail managers of OFP and food researchers. The review of literature, together with the results of the exploratory study, informed the design of the questionnaire used in the consumer study.

Questionnaire design

The design of the consumers' questionnaire employed in the survey is shown in Table 1.

The questionnaire included 25 main questions of various types. The Likert (agreement/ disagreement) and importance scales used had five response categories, and the percentage and Euro scales had six, with 1 indicating less, and 6 indicating more, of the concept involved in the question. Due to the extension and complexity of the questionnaire, the survey was conducted through face-to-face interviews, with the support of show cards. The questionnaire was first pre-tested on a small number of food consumers and, after revision, conducted on a wider scale.

Sample

The information was collected through 214 personal interviews in Lisbon. The data were collected in Lisbon since the area of the study had to be restricted and it was considered that in the capital city – which is the main market for OFP in the country (more than 50% according to Lucas *et al.* (2008)) – it would be possible to reach a wider range of respondents.

Therefore, the population under study was Lisbon residents, who conceded a certain amount of knowledge on organic products. A quota sampling procedure was implemented, with gender and age as control variables. Respondents from all the main districts in the city were included in the sample. From the returned questionnaires we found that the majority of respondents declared to have an average knowledge of OFP and that they declared themselves to be of middle class (Table 2).

From Table 2 it can be seen that the educational status of the respondents was predominantly secondary and university level. The percentages in these categories were far above the Portuguese average, which could be explained by two factors: firstly, in the capital city the proportion of residents with a university degree is considerably higher than in the country as a whole; secondly, people with

Table 1. Summary description of the questionnaire.

Questions	Type of scale
Filter questions	
• Gender	Nominal
• District of residence	Nominal
• Degree of OFP knowledge	Nominal
• Age	Nominal
Beliefs concerning OFP	Likert
Information sources for belief formation	Importance
OFP consumption behaviour	Nominal
Proportion of OFP consumption in specific categories of products	Ratio (%)
OFP buyer behaviour	Nominal
OFP expenditure	Ratio (€)
OFP point-of-purchase	Nominal
Attributes for OFP buying-decision	Importance
Motives for OFP non-buying	Likert
Attitudes towards OFP consumers	Likert
Attitudes towards OFP products	Likert
Intentions related to OFP consumption	Nominal
Socio-demographic characteristics	
• Household composition	Nominal
• Education level	Nominal
• Average monthly net income of the household	Ratio (€)
• Perceived social-class	Nominal

higher levels of education often have a greater knowledge of organic food products, a condition true of the population under study.

Additionally, the average family size of the sample was 3.6 members, with most of them being between 17 and 55 years old. Considering household income, 56.5% of respondents declared a net income above 1,500€ per month.

Empirical results

The data analysis consisted of descriptive statistics (frequency, mean, and standard deviation) of all the variables measured in the questionnaire and a comparison of age and gender groups. Significant differences ($P<0.05$) between those groups were analysed with the help of cross-tabulations and chi-square tests for the nominal variables and F tests for the metric variables.

The genders and age groups did not differ greatly in their knowledge, behaviour, attitudes and preferences relating to organic products. When the two genders were compared, significant differences at the 5% level of probability were found in only 18 of the 130 (13.5%) variables under analysis. If a 10% level of probability is accepted, this value rose to approximately 15%. The amount of significant differences between age groups at the 5% level (13%) is comparable to the differences in genders but is higher at the 10% level of significance (23%).

A factor analysis procedure was applied to the attitudinal scales in order to reduce the number of variables and to search for dimensions underlying these attitudes. The general purpose of factor analytical techniques is to find a way to summarise the information contained in a number of

Table 2. Characteristics of respondents.

Characteristic		Number	Percentage
Age	18-34 years	69	32.2
	35-49 years	54	25.2
	50-65 years	53	24.8
	older than 65	38	17.8
Gender	male	100	46.7
	female	114	53.3
Declared knowledge	high	17	7.9
	medium	160	74.8
	low	37	17.3
OFP consumers	frequent	34	15.9
	occasional	135	63.1
	no	45	21
Education	without graduation	1	0.5
	primary school	22	10.3
	secondary school	91	42.5
	craft certificate	17	7.9
	university degree	83	38.8
Social level	high	38	17.8
	medium high	130	60.7
	medium	34	15.9
	medium low	12	5.6
	low	0	0

original variables into a smaller set of new, composite dimensions (factors) with a minimum loss of information – that is to search and define the fundamental dimensions assumed to underlie the original variables (Hair *et al.*, 2009).

In this section we will examine the data in the same order that it appeared in the questionnaire (Table 1). For each issue the differences between gender and age groups will also be discussed and, when appropriate, the results of the factor analysis and their explanation are presented.

Knowledge of organic food products

Concerning their knowledge of OFP, the majority of respondents (74.8%) declared it to be average. However, the percentage of respondents (17.3%) with a low declared knowledge of organic products was higher than the percentage (7.9%) that stated they had considerable knowledge. In this respect, there was no significant difference between genders or age groups.

Regarding beliefs about organic products, for the sample these products are, in decreasing order of importance (on a 5 point scale): products without chemical additives (mean 4.53); products without preservatives (3.86); natural or organic labelled products (3.73); products with an official certificate (3.60); wholesome products (2.54) and products from the farm (2.38). The only significant difference found was in the item 'products without chemical additives', with younger people and women showing a higher mean value for this belief. So it can be said that the perception of organic products is mainly associated with the absence of non-natural components and secondly with a certification process.

That last statement is reinforced by the results of the factor analysis. As mentioned before, the beliefs in respect of organic products were measured through a five point Likert scale of seven items. The scale was reduced and analysed using factor analysis (procedure Factor in SPSS version 17). The analysis employed principal components with Varimax rotation and the extraction of the factors was based on eigenvalue criterion (above 1), generating a final solution of three factors (see Table 3), which explains approximately 68% of the variance of the original data. Preliminary analysis of the scale employed all the items. However, the communality for item (g) (products with an official certificate) was judged to be quite low (<0.5) indicating that the set of derived factors explained a low proportion of the variance of this item. Consequently, the statement was excluded from the subsequent analysis.

Examination of the significance of the correlations between the factors and the statements provides interpretation of the dimensions. Factor 1 is strongly correlated with statements (b), (c) and (e) and is titled 'Natural'. Factor 2 is strongly associated with statements (a) and (d) and is titled 'Wholesome' and factor 3 is titled 'Certified', since only statement (f) has a high loading on this dimension. Consequently, it can be concluded that there are three main dimensions underlying consumers' beliefs about OFP; one related with the fact that they are natural products, the second with their wholesomeness, and the third with the official certifications.

With respect to the importance of information sources for organic product knowledge, none of the listed sources was considered very important (all means were less than 4). Nevertheless, the experts (mean 3.36, on a 5 point importance scale) were the most important source of information, followed by friends and family (3.12), advertisements and events (2.95) and information on outlets (2.58). Consequently, it can be concluded that information sources outside the control of firms are more important in building consumer beliefs than are the traditional marketing communication tools. Once again, the various age groups of consumers and genders were not significantly different in the importance they attached to the different information sources.

Attitudes towards organic food products

Moving to attitudes towards organic products, these were measured with a five point Likert scale of nine items. Through the analysis of the means of each item it can be said that respondents had a very positive attitude to OFP. Respondents strongly agreed that organic products are good for health

Table 3. Varimax rotated factor solution of beliefs about OFP.

Variables	Factor			Communalities
	1	2	3	
Organic food products are…	Natural	Wholesome	Certified	
a. From the farm	0.035	0.855	-0.206	0.774
b. Natural or organic labelled	0.686	0.051	0.190	0.510
c. Without chemical additives	0.657	-0.096	-0.564	0.760
d. Wholesome-products	0.126	0.730	0.324	0.655
e. Without preservatives	0.756	0.154	0.106	0.606
f. With official seal	0.247	-0.002	0.851	0.785
Eigenvalue	1.552	1.300	1.237	
Variance (%)	25.87	21.67	20.62	
Cumulative (%)	25.87	47.53	68.15	

(mean 4.59), that they are of better quality (4.42), tastier (3.86), and without adverse effects (3.43). People also tended to disagree with the negative statements about organic products. Respondents did not think that organic products are a fraud (mean 1.69), inferior to conventional foods (1.86), or a temporary fashion (2.52). However, they did think that they are more expensive (4.46) and less attractive than conventional foods (2.93).

Some significant differences were revealed between consumer groups regarding their attitudes to OFP. Women had a significantly stronger opinion about the positive impact of OFP on health (mean 4.68) than men (4.50). At the same time, it was the older consumers (above 65 years old) that associated OFP with higher prices (mean value of 4.8 versus 4.5 for all respondents).

Factor analysis was also performed on this scale. The statistical tests (KMO index and Bartlett's test for sphericity) confirmed the significant correlations between the variables, indicating that factor analysis could be applied. Again, the analysis employed principal components with Varimax rotation and the extraction of the components was based on the eigenvalue criterion, generating a final solution of three components (Table 4). The preliminary analysis of the scale employed all the items. However, the communality for item (h) (OFP do not have adverse effects) was quite low (<0.5) and the statement was excluded from the subsequent analysis.

The three components extracted explain approximately 62.5% of total variance. With respect to the communalities, all the six variables in the final model have communality greater than 0.50, which indicates that the model explains a reasonable proportion of the variance in each variable. Consequently, the derived model, in spite of not fitting the data perfectly, can be considered satisfactory.

Examination of the significance of the correlations between the components and the statements provides further interpretation of the dimensions. Component 1 is strongly correlated with the statements (a), (b), (d) and (g) and is titled 'Superior'. Component 2 is strongly associated with statements (c), (e) and (i) and is titled 'Fraud' and component 3 is titled 'Expensive', since only statement (f) loads significantly on this dimension. Therefore, it can be said that OFP consumers

Table 4. Varimax rotated factor solution of attitudes towards OFP.

Variables	Component			Communalities
	1	2	3	
Organic food products are…	Superior	Fraud	Expensive	
a. Good for your health	0.626	-0.342	0.022	0.509
b. Of better quality	0.802	-0.237	-0.082	0.705
c. A fraud	-0.160	0.802	0.065	0.672
d. Tastier	0.708	-0.124	0.170	0.545
e. Worse than conventional food	-0.137	0.719	-0.173	0.566
f. More expensive	-0.011	0.078	0.953	0.914
g. More attractive	0.676	0.230	-0.127	0.526
i. A temporary fashion	-0.001	0.711	0.234	0.561
Eigenvalue	2.036	1.914	1.048	
Variance (%)	25.454	23.922	13.105	
Cumulative (%)	25.454	49.376	62.481	

see these products as being superior to conventional products, they do not see them as a fraud, but they think they are more expensive than the conventional food products.

Additionally, respondents are of the opinion that consumers of organic products care about their health (mean 4.5), are exigent consumers (4.09) and are well informed consumers (3.93). People also think that consumers of OFP do not tolerate conventional foods (3.69) and have high incomes (3.39). However, they tend to disagree that those consumers are following a temporary fashion (2.38), particularly care about the environment (2.56) or have health problems (2.93). These results are consistent with respondents' attitudes towards OFP. Again women tended to agree more strongly than men that consumers of OFP care about their health, and middle age people (50-65 years old) tended to agree more strongly that OFP consumers are well informed consumers.

Consumption and buying behaviour

With respect to consumption and buying behaviour, 79% of respondents declared that they had consumed OFP. Of those, only 20% are habitual consumers but 82% of OFP consumers affirm that there are other organic food consumers in their household. On average, consumers of OFP are not exclusive consumers, and only a small proportion of total food consumption is organic (on average less than 25%). This proportion is higher for fruits and vegetables, eggs and olive oil (more than 25% but less than 50%), and lower for rice, pasta, and milk and dairy produce (less than 10%).

Approximately 66% of the respondents stated that they bought OFP. On average, buyers spend less than €50 per month on OFP. The majority of OFP buyers (62.5%) buy OFP in the hypermarkets. Only 37.5% of them buy from the producer, 34.6% in speciality shops, 21% in supermarkets, 18.4% in health food shops, 14% in traditional grocers, and 13.2% in herb shops. These figures reflect the reality of the Portuguese market, since it is in the hypermarkets that consumers can find a larger variety and quantity of OFP.

When compared with older people, the younger consumers (from 18 to 34 years old) consume significantly more organic eggs, bread and grains, but significantly less organic wine. The only significant difference revealed between men and women is that women tend to buy OFP from the producer and herb shops more than men.

Moving to attribute importance for OFP buying-decision, flavour is the most important attribute with a mean of 4.43, followed by the absence of additives (4.38), nutritional value (4.36), environmentally friendly production (4.10), official certification (4.01), price (3.49), appearance (3.23), production region (2.72), and brand (2.23). Women attach significantly more importance than men to two of these nine attributes: nutritional value and official certification of OFP.

Factor analysis was also applied to this scale, following the same procedures employed in the previous scales. As it can be seen from Table 5, the final 3 component solution explains approximately 58% of the total data variance. In spite of not fitting the data perfectly, the factorial model enables some data reduction and interpretation.

The first factor was labelled 'extrinsic', since three of the four items that load significantly on this dimension are extrinsic attributes of OFP. The same reasoning applies to the second factor and OFP credence attributes. The third factor is a mix of flavour (an experience attribute) and price. Therefore, it can be stated that consumers decide to buy OFP on the basis of three main dimensions – the extrinsic attributes, the credence attributes, and an experience attribute plus price. The second dimension is (on average) the most important in the buying decision, but the extrinsic factors better explain the differences among consumers (explained variance of 23.6%).

Table 5. Varimax rotated factor solution for importance in buying decision of OFP.

Variables	Component			Communalities
	1	2	3	
Attribute importance	Extrinsic	Credence	Experience	
a. Price	0.164	0.087	0.701	0.526
b. Flavour	0.062	0.084	0.788	0.632
c. Brand	0.621	-0.046	0.303	0.479
d. Appearance	0.593	0.230	0.315	0.503
e. Without colour and preservatives	-0.004	0.773	0.152	0.621
f. Nutritional value	0.158	0.788	0.048	0.648
g. Environment-friendly	0.551	0.570	-0.003	0.629
h. Region of production	0.610	0.203	0.252	0.477
i. Official seal	0.812	0.048	-0.196	0.699
Eigenvalue	2.126	1.657	1.431	
Variance (%)	23.62	18.41	15.90	
Cumulative (%)	23.62	42.04	57.94	

The non-buyers of organic food products

Finally, the non-buyers of OFP were asked for reasons that could explain their behaviour. The fact that OFP are unavailable in the respondents' usual food outlet (mean 3.63) is the reason that best explains this behaviour. The difficulty in finding organic products (3.38) and their higher price (3.4) are also relatively important for respondents. These reasons are followed by the fact that some of the non-buyers do not know where to buy these products (2.74), think that the products are difficult to preserve (2.59), do not think that organic and conventional food products are any different (2.44) and do not like their appearance (2.26). The men that are not OFP consumers tend to agree significantly more than women that OFP are not different from conventional food products and that they have a worse appearance.

From the figures above it can be concluded that the reasons most evoked not to buy OFP are more related to marketing (distribution channels, merchandising and communication) than with the OFP attributes, including their perceived high price. This statement is confirmed by the factor analysis results presented in Table 6.

As it can be seen from the Table 6, the lack of information or availability on point-of-sale is the dimension that explains the most variance of the data, followed by the dimension 'Appearance' and the dimension 'Value' (a high price for a not very different product).

Non-consumers of OFP were also asked a series of questions about their future intentions concerning OFP and 44. 4% agreed that consuming organic products would be a good experience, 46.7% declared that it would probably be so, and 8.9% did not know. Approximately 55% of the non-consumers acknowledged that they had seen organic food products for sale.

Moreover, 37.8% of the non-consumers declared that they would buy OFP if they were available in their food outlet, 46.7% said that they probably would, and 11.1% declared that they did not know. Only 4.4% said they would not. Finally, non-consumers were asked if in the future they intended to look for and buy OFP; 31.1% of respondents said they would, 44.4% said they probably would,

Table 6. Varimax rotated factor solution for reasons for not buying OFP.

Variables	Component			Communalities
	1	2	3	
I do not buy OFP because…	Information	Appearance	Value	
a. High price	-0.008	-0.164	0.810	0.683
b. Difficult to find them	0.872	0.099	-0.114	0.784
c. Unavailable on my usual outlet	0.895	0.010	-0.120	0.816
d. Don't know where to buy	0.759	0.045	0.153	0.602
e. See no differences	-0.045	0.351	0.644	0.540
f. Appearance	0.045	0.869	0.028	0.758
h. Difficult to preserve	0.087	0.859	0.030	0.747
Eigenvalue	2.150	1.656	1.123	
Variance (%)	30.72	23.65	16.04	
Cumulative (%)	30.72	54.37	70.41	

17.8% said that they did not know and 6.7% declared they would not. The only significant difference found between groups of non-consumers concerning their future intentions is that a higher proportion of women than men said that they intend to buy OFP in the future.

Conclusions and recommendations

Organic farming and OFP are very relevant both for producers and consumers, since they have the potential to aid in the solution of a range of problems related to food production, consumer food safety and quality concerns, environmental sustainability, animal welfare, and rural development. Also, OFP are a growing opportunity for food producers in Europe, due to a growing consumer interest in certified organic products. This is a precondition for developing a market for organic food and as a consequence increased farm income.

The consumer survey described in the present paper confirmed past research findings, showing that consumers considered they had relatively good knowledge of OFP and that they hold positive attitudes towards these products. For the respondents, the absence of chemical and preserving additives and certification are the attributes that best define OFP. Additionally, respondents perceive OFP as being healthy and of good quality. OFP perceived taste superiority is also important for consumers, but the respondents strongly perceive OFP as being more expensive than conventional food products. Moreover, respondents are of the opinion that OFP consumers are health and environmentally conscious people, as well as being demanding consumers with relatively higher incomes.

Given the good image of OFP in the markets, the declared consumption is much lower than might be expected. The majority of respondents stated that they consumed organic products but most of them also eat conventional food products and are light consumers and buyers of OFP. The OFP share of the total amount of food consumed is quite low. Therefore, it can be stated that the marketing strategies for OFP should aim at increasing the frequency of purchase and the amount of OFP bought per purchase by existing consumers, focusing also on increasing the number of consumers.

From the survey results, it can also be concluded that fresh OFP are more successful in the markets than transformed OFP. This fact may be explained by factors relating both to demand and supply. On the one hand, consumers may have worse quality perceptions of transformed OFP and do not

value as much the OFP attributes in this type of product. On the other hand, due to technological barriers and the higher increase in the costs of production, the supply of transformed OFP is also much lower than for fresh OFP.

Respondents gave as their main explanation for the non-consumption of OFP their reduced availability in the shops and lack of information, rather than negative opinions about OFP attributes. Therefore, intentions to buy OFP are quite high (but not very strong), suggesting that these products might still obtain a substantial market share in the future. This is an encouraging sign for prospective producers of OFP, who might compensate for the likely increase in unitary production costs with increases in total production.

Given the study results, it can be concluded that respondents perceive OFP as healthy, safe and of good quality. However, these products are also perceived as expensive and difficult to find, and are not available where consumers do their everyday shopping. Consequently, in order to increase the OFP market share, producers and retailers should concentrate their marketing efforts on distribution and merchandising strategies. It is necessary to place OFP in the right place, where buyers can easily purchase them, and to display the products at the point-of-sale in a visible and appealing form, so that consumers are attracted to buying them.

It is also important for market growth and success that the identity and communication strategies of OFP stress the naturalness, safety and healthiness of this type of product, in order to reinforce the existing positive attitudes towards organic food production. Moreover, communication strategies should strongly combat consumers' perceptions of OFP high prices by either justifying the premium prices, when they exist, or stressing their low levels.

The survey results also showed that information sources outside the control of companies (experts, friends and family) are more important in building consumers' beliefs than are the traditional marketing communication tools. Nevertheless, experts are a relatively important source of information about OFP. As such, public relations campaigns aimed at these experts should be given considerable importance in the communication strategies of firms, in order to develop experts' favourable opinions about OFP.

The comparison between genders and age groups in their attitudes and behaviours relating to OFP only revealed minor differences and were not very consistent. It might be argued that OFP consumers are a very small group and therefore relatively homogeneous in this respect, despite their age or gender. It may also be concluded that the traditional segmentation variables of age and gender are not efficient criteria to segment the Portuguese OFP market. Consequently, if producers or sellers need to segment the market they will have to look for other demographic or psychographic criteria.

In conclusion, the study reported in this paper makes a contribution to the expanding knowledge on quality, safety and consumer behaviour in respect of organic food in Portugal. More primary research is needed to confirm and further the findings of the OFP advantages related to attributes valued by consumers, namely their perceived healthiness and safety. Specifically, more in-depth research could be developed in order to quantify the differences between OFP and conventional food products in nutritional content and in quality indicators such as biological, chemical and sensory (e.g. flavour) attributes and the relationship between the consumption of organic products and human health.

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Overview of consumer research in Western Balkan countries

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Abstract

A set of 205 publications from Western Balkan countries was gathered and systematically ordered as an action of the EU project 'Focus Balkans – Food Consumer Sciences in the Balkans'. Six country reports provided the base data. Methodologically, publications were split up by the use of primary or secondary data or both, as well as being a qualitative or quantitative study. Qua research concept focus on the individual (human being), on the environment or on the product itself was analysed. As research tools interviews, focus groups and experiments as well as surveys, questionnaires and on-line panel data were considered. There is in general a lack of primary data, and a disproportion between qualitative and quantitative studies in favour of quantitative in the WBC. The majority of publications gathered were 'environment' oriented. There is somewhat less focus on fruit than on other product groups, being organic, traditional and health claimed. Use of interviews and written questionnaires is by far the most popular. On-line panels are not yet utilized. A study of keywords listed gave quite a useful and objective impression concerning the emphasis on different topics in the various WBC publications under consideration. The keywords indicate a focus on 'market' and 'marketing' research in most countries. Consumer 'behaviour' and 'attitude' are less listed as a main keyword, while, remarkably, 'obesity' as concept is hardly mentioned. It was noted that the 'house' of scientific expertise in this field has, perhaps, a poor foundation, while 'the pillars behind consumer science' are not interrelated and fastened together. Indeed, a multidisciplinary approach is rare. There is also a lack of interaction with the international community. By far the most publications are published in the local languages and nearly all are written by local authors. Some of the countries conclude that there is a huge knowledge gap on food consumers' science and that should be used as a stimulus for developing further research and knowledge transfer in this field.

Keywords: literature review, consumer research, quality products, Western Balkan

Introduction

The objective of this study is (1) to present an overview of consumer and market oriented studies in the Western Balkan Countries (WBC); (2) to evaluate the research methods used; and (3) to compile an inventory of consumer attitudes and perceptions with focus on publications related to the products studied in the Focus Balkan project, i.e. 'fruit', 'health claims', 'organic' and 'traditional/local' (www.Focus-Balkans.org).

Therefore, the overview presented provides information on the following aspects:

- market and consumer oriented studies;

- research methods;
- consumer attitudes and perceptions;
- gaps in knowledge;
- with focus on publications related to the products studied in the Focus Balkan project.

This paper is an overall summary based on the individual country reports. The individual country reports identify gaps in knowledge in a particular country, while this summary places the results of each country in a wider perspective. The outline of this overall summary is as follows: first materials and methods used in the publications are presented, then the results and a synthesis of the results are outlined, and finally conclusions are drawn.

It is important to acknowledge that the list of publications in this report is not necessarily exhaustive. The publications reviewed have been influenced by the scientific and academic backgrounds of each of the Balkans project beneficiaries and the publication list will be updated and completed throughout the project development and implementation (see http://www.focus-balkans.org/?p=98).

For a few countries, the publications found did not include the whole texts of the articles but only abstracts and for one country only the titles of some of the publications could be found. This is the case for Bosnia-Herzegovina and to a lesser extent for Montenegro.

Material and methods

Data on publications

Within the final bibliography of each country, information on the number of publications (see Table 1), total publications published in a language of WBC, including Slovenia, publications both with author(s) from WBC and authors from outside WBC, and year of publication were gathered as basic data (see Table 2).

In total, 205 publications were gathered. The number of publications listed per country varies widely. This surely has to do with recent history in the Balkan area, but perhaps also with the criteria used to select publications. It remains difficult to precisely define the area of Food Consumer Science. So-called 'grey literature' is not included in this database of publications. Including grey literature would have made it even more difficult to define the area of interest.

The vast majority of publications are written in the local languages by authors from WBC. Only in Slovenia was there significant interaction with international scientists where about 1 out of 10 publications had a scientist from outside WBC and more than half of the publications were in the English language. In Croatia, 69% of the listed publications are in English, but international

Table 1. Number of publications collected by each country.

Country	Total number of publications listed in database
Bosnia-Herzegovina	20
Croatia	45
Macedonia	10
Montenegro	15
Serbia	45
Slovenia	70
Total	205

Table 2. Origin and year of publication of the surveyed literature (in %).

Country	Publications originally in WBC language	Publications both with author(s) from inside WBC and outside WBC	Published in period 2000-2009
Serbia	91	0	95
Macedonia	90	0	100
Croatia	31	2	100
Slovenia	47	11	94
Montenegro	53	0	100
Bosnia-Herzegovina	60	0	100

involvement is not shown by the inclusion of foreign authors. In Montenegro, 47% of the publications entered in the database are written in English, but all authors are from a WBC background. This quite high percentage of papers in English requires further explanation. More than 94% of the surveyed publications of all WBC are from period 2000-2009.

Most prolific authors

The most prolific main authors and co-authors of the surveyed publications are listed in Table 3. As would be expected nearly all authors are from the home country with the exception of Slovenia as indicated already.

Source of publications

The total number of publications was separated into national or international papers. In Serbia, 100% of the publications are published nationally. The corresponding figures for the other countries are: Macedonia 90%, Montenegro 100%, Slovenia 50%, Croatia 36% and Bosnia-Herzegovina 75%.

Table 3. The most listed main authors and most listed co-authors, not already mentioned as main author (both about 5), for each country.

Serbia	Macedonia	Croatia	Slovenia	Montenegro	Bosnia
Main authors (in order of no. of publications)					
Štrbac, M.	Ristevska-Jovanovska, S.	Renko, N.	Kuhar, A.	Đurišić, M.	Pašalić, B.
Vlahović, B.	Kendrovski, V.	Radman, M.	Pohar, J.	Jančić, D.	Ostojić, A.
Pavlovski, Z.	Dimitrovska, Z.	Kovačić, D.	Gabrijelčič-Blenkuš, M.	Žižić, Lj.	Grujić, R.
Gulan, B.	Jakovski, B.	Kesić, T.	Klopčič, M.	Mirecki, N.	Grujić, S.
Radosavljević, K.	Azderski, J.	Zanoli, R.	Rogelj, I.	Đorđević, Z.	Radovanović, R.
Co-authors (in order of no. of publications)					
Gudelj, J.	Gjorgjev, D.	Renko, S.	Kuipers, A.	Gvozdenović, J.	Stojković, S.
Čerović, S.	Spiroski, I.	Brčić-Stipčević, V.	Juvančič, L.	Ljajević, A.	Ljaljak, S.
Škrbić, Z.	Ribarova, F.		Raspor, P.	Andrić, B.	Marčeta-Kamenko, N.
Lukić, M.	Nikolic, M.		Tacken, G.	Blagojević, N.Z.	Nikolić, A.
Đorđević, B.	Pejkovski, Z.		Pokorn, D.	Lazić, V.	Bogućanin, H.

This is in line with the fact that by far the most publications are in the home country language (Table 2), with Croatia and Slovenia as exceptions. Croatia is very much focussed on publishing in international media with more than one-third of the papers so published.

The sources of the publications (i.e. scientific journals, conference proceedings) are presented in Table 4. A large number of publications in the area of food consumer sciences is published in scientific journals or in proceedings of scientific meetings (53-99% of publications in various countries), with the exception of Macedonia which did not cite publications in scientific journals. Bosnia-Herzegovina listed predominantly conference proceedings and Montenegro also has a considerable share of conference proceedings included. Slovenia entered many masters' theses into the database. It seems that the cited authors from the WBC publish most times more or less scientifically. The second largest group of publications is derived from professional magazines.

Methods used

Various data sets can be used in preparing a study resulting in a publication. In this inventory use of primary and secondary data are considered. It is possible that in a study both kinds of data are used, or that a study is solely based on developing a theory or vision and that no data are used. The kinds of data sets used are listed in Table 5.

The focus on use of primary or secondary data varies with country. In Slovenia and Macedonia largely primary data are used, while in Croatia it is the opposite and mostly secondary data are utilized as source.

Table 4. Sources of publications.

Country	Source of publications in %							
	Scientific journal	Conference proceedings	Book	PhD thesis	Masters' thesis	Official report / document	Professional magazine	Other
Serbia	46	7	0	4.5	4.5	0	29	9
Macedonia	0	10	20	0	10	30	30	0
Croatia	64	18	0	0	9	4	0	4
Slovenia	29	30	0	1	27	7	6	0
Montenegro	21	11	3	5	5	1	22	32
Bosnia-Herzegovina	0	99	0	0.5	0.5	0	0	0

Table 5. Use of primary or secondary data or both (%).

Country	Publications with primary data	Publications with secondary data	Publications with both
Serbia	51	49	0
Macedonia	80	20	0
Croatia	11	89	0
Slovenia	91	9	0
Montenegro	50	49	1
Bosnia-Herzegovina	10	90	0

The publications are also characterised by the method of analysis used, being a quantitative or qualitative method or both methods applied in the same paper. Sometimes no method can be identified, because of the character of the paper. In this case the percentages do not add to 100. We did not succeed in discovering this kind of information from Bosnia-Herzegovina and Montenegro. The background for the difficulty in gathering literature data in these two countries is explained in the introduction. The results are listed in Table 6. Most countries focus more on quantitative than on qualitative methods. Both Macedonia and Slovenia report that the majority of papers have both a quantitative and a qualitative method. This result is somewhat curious and needs further investigation.

Type of method used

For both qualitative and quantitative publications, various methods are listed. For qualitative studies, information on interviews, focus groups and experiments was collected, while for quantitative studies, surveys, questionnaires and on-line panel data are considered as specific methods. Also other methodologies, including no specific type are mentioned. The overview of methods is presented in Table 7.

It is remarkable that each country seems to focus on a few methodologies, with interviews and written questionnaires by far the most popular. However, Slovenia seems to apply nearly all types of methods. Croatia was a surprise by indicating for the majority use of 'other' methods in qualitative research. Bosnia-Herzegovina was not able to provide this kind of methodological information. The direct linkage in this exploration, which has been made in the construction of the questionnaire between method (Table 5) and type of method (Table 6), may have artificially influenced the results somewhat.

Table 6. Methods used: qualitative or quantitative or both (%).

Country	Quantitative method	Qualitative method	Both methods
Serbia	81	4	15
Macedonia	20	20	40
Montenegro	84	8	8
Slovenia	24	22	47
Croatia	51	25	24
Bosnia-Herzegovina	-	-	-

Table 7. Type of method used for qualitative and for quantitative research (%).

Country	Qualitative method				Quantitative method		
	Interviews	Focus groups	Experiments	Other	Survey	Written questionnaires	Online panel data
Serbia	91	11	0	0	64	36	0
Macedonia	80	0	20	0	0	100	0
Croatia	43	5	0	52	27	73	0
Slovenia	31	33	36	0	43	57	0
Montenegro	93	6	1	0	66	34	0

Sample size

The sample sizes of the various studies varied widely as would be expected. For Croatia, sample size in the listed publications varied between 5 and 9,070. In 31 publications sample size was between 98 and 1000, other than for 3 larger studies which had a sample of more than 1000. These studies were about brand equity, student menus and public health. The latter was the largest study. In Macedonian publications, the sample size varied between 50 and 6,859 and in Montenegro sample size varied between 700 and 4,000. In Macedonia, the samples consisted of 2,114 students in their last years in primary school and first years in secondary school, 5,040 households on the territory of the country, kindergarten children, people in hospitals, students living in dormitories, construction workers (6,859), elderly (253) and consumers with no specific characteristics (50). In Serbia, the sample sizes varied between 98 and 18,000. Sample size information was available in nine cases. Of these, in seven studies sample size was between 100 and 1000. There were two larger studies on the health status of the population. In Slovenia, sample sizes varied between 5 and 3,816. Sample size information was available in 45 studies. Of these, sample size was between 5 and 100 in 23 publications, between 100 and 1000 in 11 and between 1000 and 3,816 in a further 11 publications.

Results and synthesis

Keywords

The 6 most used keywords in the publications of each country are listed in Table 8. The keywords listed give quite a useful and objective impression concerning the emphasis on different topics in the various WBC under consideration.

It should be noted that it is better not to look at the comparison of the number of times a keyword is used, but at the ranking of the various keywords within a country. The reason is that the number of publications differs between countries and also the abstracts are of different lengths.

In all countries 'food' is predominantly mentioned as a topic. The topics 'health' and 'health claims' are frequently cited in the work in Serbia and in Montenegro. 'Organic' seems to be of most interest as a topic in the publications in Serbia, but also in Slovenia, while it is frequently used as a main keyword in Croatia, but not so much in the abstracts. The keywords indicate some focus on market and market research in Croatia. Consumer 'behaviour' is a main keyword used by Macedonia and 'tourism' by Serbia. 'Functional' food is relatively most often used in Serbian and Slovenian papers, while 'traditional' or 'special products' are widely used by Slovenia and Croatia. Montenegro cites many times the word 'eat' and Bosnia-Herzegovina is the only partner that lists 'obesity' as a keyword.

The sources of publications (i.e. name of journal, professional magazine) in the WBC, which are most closely related to consumer and market studies, are presented in the individual country reports. The sources listed for Serbia and Montenegro are virtually the same indicating the historical close ties of these countries. It is interesting that Croatia's international orientation, especially its use of English as a scientific language (see Table 2; 69% of publications in English), is based on a specific edition of the British Food Journal, which seems to be devoted to a special group of publications.

Target groups

Most used target groups in the publications are:

- *In Bosnia*: a human population of age 40-80, fruit producers, fruit consumers and agricultural producers.
- *In Croatia*: consumers (in 17 out of 38 publications), tourists (6 of 38); producers (2 organic and 1 vegetable of 38) and students (2 of 38).

Table 8. Most used keywords for identifying the publication and pre-printed keywords used in abstract.

Serbia	Macedonia	Croatia	Slovenia	Montenegro	Bosnia
Main keywords					
food 24	nutrition	food 24	food 27	food 12	agricultural production
consumption 13	consumers	Croatia 20	Slovenia 24	nutrition 8	market
organic 13	behaviour	consumer 15	products 18	health 6	food safety
agriculture/ agricultural 13	health	market 12	marketing 14	quality 3	food production
tourism 10	protection	marketing 10	nutrition 13	organic 3	consumer knowledge
production 9	decision	organic 9	consumers 12	agriculture 7	human health
nutrition / nourishment / nutritive 9			fruit(s) 11		obesity
marketing 8			organic 10		
food with health claims 7			habit(s) 8		
rural 6			food safety 7		
quality 6			milk 7		
consumer 5			vegetable 6		
habits 5			SWOT 5		
health 4			quality 5		
fat 3			health 5		
competitiveness 3					
market 3					
Most used pre-printed keywords in abstracts					
consumer 41	consumer* 6	consumer* 27	consumer* 89	consumer 20	
market* 31	market* 1	market* 32	market* 71	market 11	
attitude* 4	attitude* 0	attitude* 9	attitude* 13	attitude 4	
behavior* 2	behaviour* 2	behaviour* 6	behaviour* 7	behaviour 2	
habit* 13	habit* 1	habit* 9	habit* 20	food 54	
nutriti* 21	nutriti* 4	nutriti* 3	nutriti* 38	organic 21	
taste 1	taste* 0	taste 2	taste 1	fruit 13	
household* 4	household* 2	household* 2	household* 24	health 44	
eat* 43	eat* 1	eat* 19	eat* 9	health claims 8	
food* 102	food* 5	food* 27	food* 153	traditional 2	
consumption* 52	consumption* 3	consumption* 7	consumption*22	consumption 27	
fruit 26	fruit 2	fruit 4	fruit 43	eat 19	
health* 51	health* 5	health* 8	health* 26	special product 0	
health claims 10	health claims 0	health claims 0	health claims 0	agriculture* 26	
organic* 30	organic* 1	organic* 8	organic* 38		
traditional* 3	traditional* 2	traditional* 6	traditional* 9		
special product* 0	special product* 0	special product* 0	special product* 6		
functional 13	functional 0	functional 1	functional 8		
agricultur* 29	agricultur* 0	agricultur* 7	agricultur* 5		

* Count of these words include extensions.

- *In Macedonia*: students in their last years in primary school and first years in secondary school, households on the territory of the country, kindergarten children, people in hospitals, students living in dormitories, construction workers, the elderly, and consumers with no specific characteristics.
- *In Montenegro*: persons in agriculture, fruit producers, children, organic producers, producers of bread.
- *In Serbia:* children, fruit producers, and agricultural producers.
- *In Slovenia*: consumers (in 29 out of 70 publications), children/scholars (4 of 70), adults/citizens (5 of 70), organic farmers/producers (7 of 70), producers of special local products (9 of 70), farmers (8 of 70), and households (3 of 70).

As can be seen the target groups in Macedonia are from all parts of society. In Croatia, tourists are regularly targeted. Several countries, such as Serbia and Montenegro, but also Slovenia, give quite some attention to agricultural groups as study object.

Consumer research concepts and products

The inventory of the publications listed in each combination of research concept and product group is presented in Table 9. The number of studies dealing with the research concept 'individual' is limited. Of the papers available in this category, most focus is on health claimed products and fruit (by Slovenia and Serbia). The largest group of papers deals with 'environment' as a research concept. Within this group, traditional products and 'other 'products are most cited. Within the research concept 'product', health claims (for Slovenia) and traditional products (for Croatia) are

Table 9. Publications in each combination of research concept and product group.

Country	Fruit	Health claims	Organic	Traditional	Other
Individual (62)					
Serbia	2	4	3	0	8
Macedonia	1	0	0	0	3
Croatia	1	2	2	2	3
Slovenia	6	6	3	4	8
Montenegro	0	0	0	0	3
Bosnia	0	0	0	0	1
Total	10	12	8	6	26
Environment (74)					
Serbia	0	6	1	1	3
Macedonia	2	0	0	1	2
Croatia	0	1	4	14	1
Slovenia	2	3	4	6	8
Montenegro	0	0	1	0	2
Bosnia	0	3	1	0	8
Total	4	13	11	22	24
Product (58)					
Serbia	1	3	1	1	2
Macedonia	0	0	0	0	1
Croatia	1	0	1	10	1
Slovenia	1	12	2	3	2
Montenegro	0	1	0	1	7
Bosnia	3	1	0	1	2
Total	6	17	4	16	15

most popular. Fruit is rarely mentioned as a topic of study with the exception under 'individual' by Slovenia. Also organic products are perhaps less cited than expected. Montenegro does have a very limited number of publications covering the product groups of interest in the FOCUS-BALKANS study. It concerns more general health control and food oriented papers. Bosnia-Herzegovina has listed most of the publications in the research concept group 'environment' under 'other'. These papers seem to cover general topics, like food safety or obesity, which makes it difficult to assign it to a specific product group.

As research methods, interviews and written questionnaires are predominantly used. Large scale studies often deal with subjects like monitoring of human health and influence of nutrition on health. Online panel data are not used in any of the countries. To understand the choices made and focus in the various WBC, some remarks which are presented in the country reports help to visualize this. A few examples are given. The Serbian participant writes that 'there is a strong tradition in our scientific community devaluing qualitative methods as less scientific in their approach. Focus groups are mostly marketing and commercially oriented research tools, and in-depth interviews are expensive in relation to the available research budgets'. The Slovenian partner characterizes the background of the authors of the publications as follows: 'According to our knowledge about authors, the majority of them is not basically educated in social sciences, psychology or marketing, but in natural sciences and their major work is focused on food production and/or processing. They started with research on issues from the field of food consumer science, then realized that such data is missing, but they needed to broaden their expertise to be able to generate it'.

General content analysis

The content of the surveyed publications, their focus and level of analysis varies from country to country. Limited information was gathered in Bosnia-Herzegovina, Montenegro and Macedonia, where very few publications were found (no more than 20 in each country). In those countries, the publications related to food are generally oriented toward food safety and nutrition, including technical aspects of food production. In Croatia, Serbia and Slovenia, the content of the publications found is more diverse and complete, in the sense that it covers different aspects of the food chain, from production to consumers' choice, including marketing and supply chain analysis.

As far as products with health claims are concerned, their analysis in the context of the European Regulation[1] does not exist in Macedonia. Neither does it exist in Montenegro, Croatia or Bosnia-Herzegovina. The focus is rather on nutritional analysis of dietary habits with regards to health. In Serbia and Slovenia, the food demand and potential growth is analysed, underlying the potential of marketing and technology. One of the conclusions highlighted in Slovenia is that nutritional labelling is still far from becoming a part of common dietary decisions.

As far as traditional products are concerned, a high number of publications dealing with traditional food were found in Slovenia and Croatia, showing a general positive image of traditional products, analysing the market opportunities and the perception of traditional products. In Serbia, where 8% of the publications found related to traditional products, two points of view were adopted, either by showing how traditional food production could be a way to achieve competitive market advantages or as part of the gastronomy. In Montenegro and Bosnia-Herzegovina, again the food safety point of view was adopted to analyse for instance honey quality or risk factors of traditional food consumption.

[1] Regulation (EC) no. 1924/ 2006 of the European Parliament and of the council of 20 December 2008 related to nutrition and health claims made on foods defines health claims as 'any claim that states, suggests or implies that a relationship exists between a food category, a food or one of its constituents and health'.

Concerning organic products, a lot of publications were found in Croatia, Serbia and Slovenia with diverse points of view: agronomical/food production, consumers' choice and satisfaction and marketing. In Slovenia, the main determinants of organic food consumption found were the availability in the shops, the income component, the visual attractiveness and health and environmental considerations. In Montenegro and Bosnia-Herzegovina, the potential for organic agriculture and organic production standards were examined. No publication on organic products was found in Macedonia.

Finally, fruit products are rarely studied, except in Serbia, which can be explained by the fact that Serbia is an important exporter of some berry fruits (raspberries for example).

Conclusions

A rather large set of 205 publications from the Western Balkan countries was gathered and systematically ordered.

Methodologically, there is in general a lack of primary data, especially concerning research with large representative samples. Moreover, a disproportion between qualitative and quantitative studies is observed in favour of quantitative. This is probably due to the perception in the Western Balkans that quantitative research is 'more valuable' resulting in the fact that qualitative methods are often neglected.

It appears that the majority of the publications gathered are qua research concept 'environment' oriented.

A part of the publications' contents is said to be either too general or too theoretical and therefore of limited applicability. Quite some papers give general information and conclusions like 'consumers request a certain quality from the food producers' or 'quality became a most important characteristic of the products within the world market' or 'product quality can be achieved by implementing ISO series of standards'. There are not enough data on consumers' attitudes, knowledge and habits regarding food in general, and especially regarding different food types chosen for case studies. Also, there is less focus on fruit than on the other product groups.

There may be a perception that research in such 'soft' science has a rather low 'scientific value' compared to 'pure' science. The 'house' of scientific expertise in this field has therefore, perhaps, a poor foundation, while 'the pillars behind food consumer science' are not interrelated and fastened together. This is the reason that a multidisciplinary approach is rare.

It is observed that the accessibility of the scientific work is very limited. There is also a lack of interaction with the international scientific community. This is illustrated by the fact that the vast majority of publications are in the local languages and nearly all of them are written by local authors.

Some of the countries conclude that there is a huge knowledge gap on food consumers´ science and that should be used as a stimulation for developing the base for further research and for obtaining knowledge about this topic.

Processors and retailers attitudes towards consumer demand for dairy nutrition and health claimed products in Western Balkan Countries

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Abstract

This study is addressed to the nutrition and health (N&H) claimed dairy products market and the different factors that influence development of this market segment in Balkan countries. The empirical analysis deals with examination of differences both in processors' and retailers' attitudes between two N&H claimed product category groups – dairy and other products (jam, margarine, fruit juices and dietetic products). The analysis was based on data from the following two primary sources: (1) data collected by store check, both in hypermarkets and specialized shops; and (2) data obtained from processors and retailers by in-depth interviews. Dairy products milk and yogurt with N&H claims cover one quarter of all products surveyed by store check. The largest number of brands in Serbia, Slovenia, Croatia and Bosnia-Herzegovina are of domestic origin, while other Western Balkan Countries (WBC) brands are most common on the Macedonian and Montenegrin markets. The number of N&H claims made on dairy products depends on the origin of the product – WBC producers make more claims per product than EU producers. Around one third of all claims are health related. Visual presentation of products included use of different images such as an ideal female figure, a sign for urgent medical help and arrows around the waist. The store check also served to identify producers who were potential candidates for interviews in the six WBCs involved in this study. In total, 36 producers and 24 retailers participated in the interviews. Overall response rate was 71%. Dairy products – milk, yoghurt/kefir and cheese accounted for 52 out of 120 observations. Two of the analyses of this study are presented. The first analysis deals with the examination of differences between dairy and other N&H claimed products, and the second refers to differences between the dairy processors' and retailers' points of view. For that purpose, a non-parametric testing procedure based on two independent samples was used. This procedure is based on the Mann-Whitney test which uses the rank of each group and the sum of ranks to examine whether category groups are drawn from the same population.

Keywords: nutrition and health claims, dairy sector, market structure, consumer demand, perspectives

Research background and methodology

Background

This paper presents the first findings of the Focus-Balkans EU Framework Programme (FP7) funded project[1] related to the Western Balkan Countries (WBC) market for nutrition and health (N&H) claims products in the dairy sector involving milk, yogurt and cheese. Within the EU regulations 'a health claim' means 'any claim that states, suggests or implies that a relationship exists between a food category, a food or one of its constituents, and health' (Regulation (EC) No 1924/2006, p. 8). The analysis applies to dairy products with structure and function claims, as well as to reduced disease risk claims. Structure and function claims describe effects of a food or nutrient on normal functioning of the body. An example of this type of claim is *high in calcium – calcium builds strong*

[1] FOCUS-BALKANS: Food Consumer Sciences in the Balkans: Frameworks, Protocols and Networks for a better knowledge of food behaviours, FP7 Cooperation Work Programme: Theme 2 – Food, Agriculture and Fisheries, and Biotechnology, Grant Agreement no 212579 – Analysis is based on D6.1 – Consumer motivations and behaviours for products with nutrition and health claims, draft version, edited by Z. Stojanovic, M. Zaouche-Laniau, D. Barjolle and M. Esteve.

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bones. Disease-risk reduction claims imply a relationship between dietary components and a disease or health condition. Claims that link calcium and vitamin D to prevention of osteoporosis, and saturated fat, cholesterol and sodium to cardiovascular health fit into this category. The health claims mentioned above are usually connected to nutrition labelling. Hence, products with both nutrition and health claims were examined. Contrary to health claims, nutritional statements are required and regulated by national legislation in WBC. The present research findings are addressed to the WBC N&H claimed dairy products market and the different factors that influence or might be influential in development of this market segment in the future.

The academic discussion about N&H claims made on food has gained in importance lately (Diplock *et al.,* 1999; Lawrence and Germov, 1999; Nestle, 2002; Strauss and Dunkan, 1998). The literature focuses on conceptualization of the innovation process, identification of market opportunities and regulatory/business environment (Deepananda *et al.*, 2008; Gray *et al*., 2003; Mark-Herbert, 2003, 2004; Peng *et al.*, 2006; Schaafsma and Kok, 2005; Stewart-Knox and Mitchell, 2003; Van Kleef *et al.*, 2002). However, scientific articles published in WBC journals hardly cover any consumer perspective in this area. Although general marketing and consumer research is widely applied, from the theoretical point of view, food consumer science is still underdeveloped. Additionally, most of the studies are based on secondary data. On the other hand, analysis of the regulatory framework, including medical and technological aspects of health claimed products, is well covered. Articles on diet and health can be found mainly in the medical journals (Koch and Pokorn, 1999; Marčeta-Kamenko *et al*., 2004; Miletić *et al.,* 2008; Šobajić, 2002). There are several theoretical articles emphasizing health benefits that come from consumption of functional food or analyzing the legal environment and regulations regarding this food type (Grujić, 2005; Raspor and Jevsnik, 2008; Stanković and Djordjević, 2002). Several papers have analysed the possible contribution of marketing and technology to the offer of food with health claims (Dimitrijević-Branković *et al.,* 2002; Ljaljević *et al.,* 2006; Ristevska-Jovanovska, 2007; Ristić, 2003; Rogelj, 2000). Within the FP7 funded project Focus-Balkans, complex analyses are used to examine both the supply and demand sides of the market. This paper presents the main findings obtained from in-depth interviews regarding the dairy products group.

Methods

The market study was closely linked to determination of the supply structure. The reliable method for obtaining such data is the linear and specialized store check. The store check method has allowed a detailed analysis of available products in the explored categories. An additional benefit of this method was reflected in detailed information about the manufacturers that offer products in the studied categories in the WBC market. Hence the store check served as the basis for the list of producers who were invited to participate in interviews in the six countries (Bosnia-Herzegovina, Croatia, Macedonia, Montenegro, Serbia and Slovenia). In each WBC the research followed the same structure. The structure of the retail chains in the study included international retail chains, regional retail chains, key retail chains present only in the domestic market, and chains of so-called health food (specialized) shops.

The market study was based on the processors' and retailers' interviews. The research was necessarily based on a sample of producers and retailers. In total 29 out of 45 producers identified by store check from WBCs and 26 retailers present in the region were interviewed. Additionally, seven EU exporters regionally present in WBCs and active in the studied categories of products were interviewed. The overall response rate was 71%. In respect of the number of studied category observations, the analysis was based on a total of 120 products,[2] which included 52 dairy products consisting of milk,

[2] One interview covers two categories of products surveyed by a questionnaire. Thus, the number of observed categories in relation to the interviews done is higher: 62 for processors and 58 for retailers.

yogurt and cheese. Based on the dataset described, the list of processors and retailers included in the analysis enabled a high rate of reliability to be achieved.

The interviews essentially consisted of open-ended questions emphasizing the qualitative, in-depth aspects of the issue. Closed-ended questions were used only as a part of already established open issues and only after the spontaneous response of the interviewees. They were asked in different forms: dichotomous (yes or no) questions, multiple choice questions, and rank order scaling and rating scale questions. Interviewees were asked about overall attitude toward consumers' demand, main criteria and constraints for consumer choice, perceived consumer characteristics and cross-perception of stakeholders (producers, retailers and policy makers). Additionally, processors and retailers were asked to provide insights into the studied categories markets as well as into the N&H claimed product market trends and perspectives.

The analysis dealt with examination of differences both in processors' and retailers' attitudes between two N&H claimed product category groups. The first category group consisted of dairy products (milk, yogurt and cheese) and the second category group contained other products (jam, margarine, fruit juices and dietetic products). In order to find out whether significant differences in attitudes existed towards the two category groups, a nonparametric testing procedure based on two independent samples was used. This was based on the Mann-Whitney (MW) test which uses the rank of each group and the sum of ranks to examine whether category groups are drawn from the same population.[3]

Results

Review of WBC dairy N&H claimed products market structure

Milk and yogurt with N&H claims cover a total of 114 products (52 and 62 respectively) in all WBCs, of which the largest number is registered in Serbia. Almost all products in this category (98% of milk products and 100% of yogurt products) were surveyed in hypermarkets. This retail market structure was also confirmed by interviews with dairy producers in all WBCs. Most of the specialized retailers (so-called health food shops) are not equipped with adequate cooling devices for dairy product storage and therefore not able to offer these products to the consumers.

The results of the survey indicated that 29 brands and 21 manufacturers in the milk category, and 43 brands produced by a total of 28 manufacturers in the yogurt category were present in the WBC market. Origin of brands in the milk category was as follows: 82.8% WBC origin and 17.2% EU origin. Similarly, the structure of manufacturers was 76.2% from WBC producers and 23.8% from EU producers. Approximately 86% of all brands in the yogurt category were of WBC origin and the rest were EU brands. The structure of yogurt manufacturers was as follows: 93% were WBC producers and only 7% were EU producers. The largest number of brands in Serbia, Slovenia, Croatia and Bosnia-Herzegovina were of domestic origin, while other than national WBC brands were most common on the Macedonian and Montenegrin markets (Figure 1).

The number of N&H claims made on dairy products depends on the origin (Figure 2). In case of WBC products, the number of claims per product in the milk category varied from one to five, whereas products from the EU market had at maximum three claims. However, the largest number of products

[3] This test is equivalent to the Wilcoxon rank sum test and the Kruskal-Wallis test for two samples. The MW test could also compare the medians of the two groups but under restrictive assumption that population distributions are different only in location (not in shape). If they are equivalent in location, the ranks should be randomly mixed between the two samples. However, when this assumption is not satisfied, MW test is not appropriate for testing difference between medians of the two populations (MW statistics can have a p-value equals to 0 even though the two groups have identical medians).

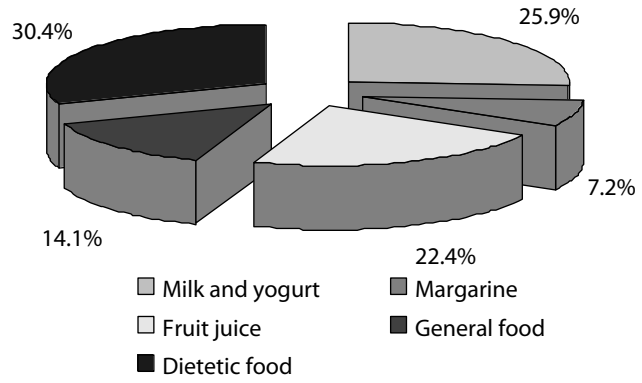

Figure 1. WBC: brand structure by nutrition and health product groups (Stojanovic et al*., 2010).*

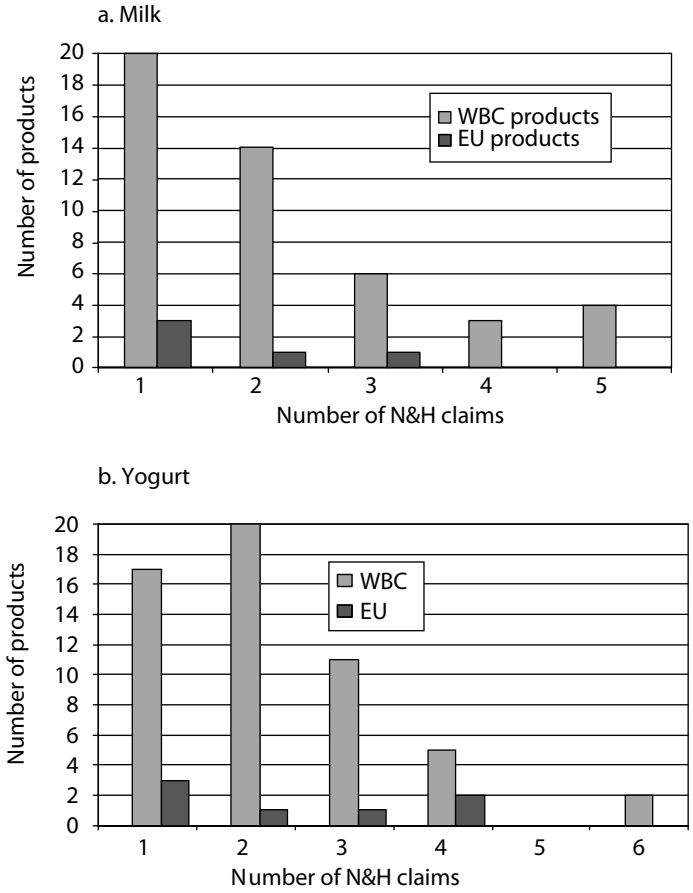

Figure 2. Structure of products in WBC by number of nutrition and health claims (Stojanovic et al., *2010).*

had only one claim, regardless of their origin. With the exception of two producers with six claims, N&H producers on the WBC yogurt market had up to four claims. In case of EU producers present on the WBC market, the largest number of their products had one claim.

Most of the products with nutrition claims in the milk category are of low fat, products which contain some nutrient or other substance, and products which claim to be sources of vitamins and/or minerals. Those claims make up more than 70% of all N&H claims. Beside the above mentioned claims, producers in this category used the following claims: enriched with vitamins and minerals, high content of vitamins and/or minerals, increased nutrient, low energy, fat-free and source of fibre. Among all products in this category around 1/3 had health claims. These products were present in five WBCs, the exception being Montenegro. Most of these products are of WBC origin and of the structure/functional claim type. In addition, organic labelled products existed on the same market.

The product category labels also include additional information such as 'it is good to know that 55% of people living in the region of Balkans are intolerant to lactose which creates problems in the digestive process. This milk is easy to digest giving you a chance to enjoy milk without any problems' or 'source of vitamins A, E, folic acid, B complex and calcium – for regular growth and development of children and young population, for pregnant women and mothers, as well as for those active in sports'. Full comment on different food constituent functions toward health is usually given on the back of package label under the question *did you know*. The form of package might also include some additional association to a healthy lifestyle such as a body on the move or a happy woman. Claims also include special statements made for children as a target consumer group like 'for proper development of your child, full with vitamins'.

Most of the products in the yogurt category with nutrition claims state that they contain nutrient or other substances, with low fat and light products. Those claims make up almost 90% of all N&H claims. Apart from the mentioned claims, producers in this studied category also use the following claims: fat free, with no added sugars, high fibre, source of vitamins and/or minerals, and natural. In all, 32% of products in the yogurt category have health claims and are present in all six WBCs. Most of those products are of WBC origin. 'Improves your immunity' or 'supports digestions' are the most widely used claims in this category. A few claim functionality – for example, 'with fibrin for strong bones', 'recovers intestinal flora', 'reduces risk of osteoporosis'. However, there are also claims suggesting that yoghurt (kefir) is a centenarians' beverage for good health and long life. Visual presentation of products includes using of an ideal female figure, sign for urgent medical help and arrows around the waist.

Motivations, barriers and perceptions of consumer demand

General overview

Processors mostly note an increasing demand for products with H&N claims in the region. The price of products with H&N claims is absolutely the most important factor influencing local consumers' choice of food. However, they also see health benefits of food as of growing importance. Constraints on consumers buying products with H&N claims of similar high importance are economic difficulties, price, lack of nutrition knowledge and eating habits. Availability has been the sole constraint not given great importance by either processors or retailers in almost all WBCs.

Processors and retailers perceptions of the profile of consumers of products with H&N claims are quite similar in all WBCs: consumers are generally female in the age group of 15 to 40 years or perhaps older (40 to 64 years), of middle or higher income, with secondary or high education, and living predominantly in urban areas. Profile was not affected by current health status. Consumers of products with health claims are perceived as mostly practicing a healthy life style, following modern trends and fashion in food consumption, active (sportsmen, businessmen) or mothers who are expected to provide healthy food for their families.

Retailers buy-in to N&H claimed products in WBCs seems to be unsatisfactory. Regarding retail chains, processors often complain about the limited shelf space for which, as they emphasized, they 'have to fight'. Many experts believe that the food labels are not easily understood by consumers, particularly having in mind that the majority of consumers still aren't sufficiently educated about the nutritional composition of products or diet-health/disease related aspects of food.

Exploring the differences

Case 1: dairy vs. other N&H claimed products

This section explores the differences between two product groups obtained from in-depth interviews with processors and retailers. The first product group was homogeneous and consisted of dairy products only, while the second was differentiated and consisted of other N&H claimed products present in the WBC market.

Regarding processors' motivations to develop products with N&H claims, the analysis indicated that there was no difference between the two product groups. The two groups were derived from the same population meaning that the difference in processors' opinion on motivations in respect of those two groups did not differ statistically (Table 1). The same conclusion can be drawn for retailers' motivations with respect to N&H products. The most important motives both to develop and sell products with N&H claims were to increase profit, meet consumers demand and improve

Table 1. Motivations and barriers to offering N&H claimed products:-testing of differences between dairy and other products – Mann-Whitney test.

	Processors		Retailers	
	Test statistics	*P*-value	Test statistics[1]	*P*-value
Motivations				
Profit	-0.765	0.444	-0.950	0.342
Image	-0.859	0.390	-0.580	0.562
Consumer demand	-0.315	0.753	-0.094	0.925
EU trend	-1.391	0.164	-0.073	0.942
Market position	-0.400	0.689	-0.715	0.475
Barriers				
Financial problem	-0.444	0.657		
Scientific assistance problem	-0.552	0.581		
Regulation	-1.174	0.241		
R&D problem	-0.521	0.603		
Info problem	-0.730	0.465		
Availability			-0.957	0.339
Foreign companies difficulties			-2.327**	0.020
Price			-0.920	0.358
Logistic difficulty			-1.210	0.226
Low demand			-0.289	0.772
Consumer awareness			-0.719	0.472
Habit problem			-0.681	0.496
Competitiveness			-1.895**	0.050

[1] Significance level: ** Significant at 5% level.

the image of the company, while other motives, such as following EU trends and market position, were less important.

Concerning barriers with which processors are faced in developing N&H products, no significant difference was found between the two category groups (Table 1). However, with respect to retailers' problems in meeting consumers' demand for N&H products, it can be stated that differences between the two category groups existed in two areas: difficulties in relationships with foreign companies and competitiveness between different distribution channels. Additionally, a significant difference existed between processors evaluation of the public/national policy importance in this sector's development.

With regard to processor company opinion on consumer demand (perception and behaviour) for its N&H products, there was an indication that a difference existed between the two category groups in *food safety* as a criterion of consumer's choice (Table 2) in that the dairy processors were more oriented to food safety aspects than other processors. On the other hand, retailers in the dairy category had a different view on *freshness* criteria, compared to those in other categories.

With respect to the processors' opinion on the main restrictions for consumers in buying products with H&N claims, the responses of the two category groups differed somewhat regarding nutrition knowledge and availability of products (Table 2). Consumers were more knowledgeable concerning the nutritive value of dairy products than consumers of other N&H products. Additionally, they advocated for better availability of dairy products, compared to other N&H claimed product categories, in the WBC market. A better availability of dairy products was also important to the retailers.

In analyzing perspectives about future consumption of products with H&N claims, one of the main questions refers to the factors of change in future food consumption (Table 3). Processors in the dairy products category gave similar responses as processors of other product categories with respect to all mentioned factors of change (consumer nutritional knowledge, health dimension of food, public policy, purchasing power change, lifestyle and fashion). However, retailers had different responses regarding consumer nutritional knowledge as a factor of change in future consumption

Table 2. Current consumer demand: testing of differences between two category groups (dairy and other products) – Mann-Whitney test.

	Processors		Retailers	
	Test statistics[1]	*P*-value	Test statistics[1]	*P*-value
Criteria for consumer choice of food				
Price	-1.053	0.292	-0.442	0.659
Taste	-1.619	0.106	-0.845	0.398
Safety	-1.648*	0.099	-0.491	0.623
Freshness	-0.232	0.817	-2.741***	0.006
Health dimension	-0.645	0.519	-0.243	0.808
Label	-0.288	0.773	-0.356	0.722
Restrictions to consumer choice of food				
Price	-1.113	0.266	-1.227	0.220
Economic difficulty	-0.848	0.397	-1.278	0.201
Nutrition knowledge	-1.654*	0.098	-0.681	0.496
Availability	-1.702*	0.089	-2.653***	0.008
Habits	-0.260	0.795	-0.935	0.350

[1] Significance level:* Significant at 10% level; *** Significant at 1% level.

Table 3. Factors of future demand: testing of differences between two category groups (dairy and other products) – Mann-Whitney test.

	Processors		Retailers	
	Test statistics[1]	*P*-value	Test statistics[1]	*P*-value
National policy	-2.124**	0.034	-0.309	0.757
Nutrition knowledge	-0.652	0.514	-1.991**	0.046
Health	-0.962	0.336	-0.777	0.437
Public policy	-1.201	0.230	-0.109	0.913
Purchase power	-0.189	0.850	-0.604	0.546
Lifestyle	-0.940	0.347	-0.443	0.658
Fashion	-0.185	0.853	-0.692	0.489
Change of consumption	-1.693*	0.090	-0.982	0.326

[1] Significance level:* Significant at 10% level; ** Significant at 5% level.

of H&N products. They considered this factor more important for the other category group than for the dairy category group. Additionally, processors envisage a slightly worse position of dairy than other products in the market with regard to perspective for future growth.

Case II: processors vs. retailers in dairy N&H claimed category group

In Case I we explored the difference in opinions of processors and retailers towards the two product category groups – dairy products and other products. The purpose of this part of paper is to focus on differences between processors' and retailers' opinions within the dairy category (Case II). This concerns motivations to develop (or sell) products with N&H claims and the perception both of current demand and factors of these products influencing future consumption in WBCs.

Results of the analysis on motivations and barriers to offering dairy N&H claimed products are presented in Table 4. Differences in motivations between processors and retailers in the dairy product group concerned profit and image. When a Medians test was applied, there was a significant difference in median rank between processors and retailers with respect to the *image* motive (value of chi-square statistic=3.401; *P*=0.056). Processors' median rank for improving the image of the company as the motive to develop N&H products was 4, while retailers' median rank for this motive to sell N&H products was only 2. Clearly, retailers find the image factor less important than processors.

Table 4. Motivations and barriers to offering dairy N&H claimed products: testing of differences between processors and retailers – Mann-Whitney test.

Motivations	Test statistics[1]	*P*-value
Profit	-2.195**	0.028
Image	-2.750***	0.006
Consumer demand	-0.944	0.345
EU	-0.324	0.746
Market position	-0.394	0.694

[1] Significance level: ** Significant at 5% level; ***Significant at 1% level.

Processors' and retailers' opinions on the consumer behaviour toward the products with N&H claims in the dairy sector differed significantly for two criteria. More precisely, processors and retailers had different responses regarding taste and freshness as specific criteria for dairy food choice (differences were significant at 1% probability level, Table 5). Tests of differences in median ranks for the two criteria between processors and retailers also showed that they were significant (chi-square statistic=4.156; *P*=0.041 for taste; chi-square statistic=4.105; *P*=0.043 for freshness). Median rank of taste criteria in the case of processors companies was 3, while retailers' median rank was 4. Median rank of freshness as the criteria of consumers' choice of N&H products in processors companies was 4, whereas for retailers median rank was 2. In brief, retailers perceived freshness as one of the most important criteria, whereas processors did not. On the other hand, in comparing N&H claimed products with standard/conventional ones, dairy processors were more concerned about taste criteria.

Regarding the opinions of processor and retailer companies on the main constraints to consumers in buying products with H&N claims, test results indicated conclusively that there was no difference. There was no significant difference for any of the mentioned constraints (price, economic difficulty, nutrition availability, habits). Both processors and retailers perceived weak availability of products with N&H claims as the least important constraint to consumers in buying them (median mark 2), whereas eating habits was the most important constraint (median mark 5).

The analysis of factors of change in future consumption of dairy products with H&N claims indicated differences in processors' and retailers' opinions regarding consumer nutrition knowledge, public policy influences and changing lifestyle (Table 6). Also opinions differed somewhat on fashion. Generally, compared with producers, retailers marked all mentioned factors as more important. Additional analysis based on Medians test shows that, for instance, retailers marked public policy as a very important factor of change in future consumption of N&H products (with median mark of 5), while a lower weight for this factor was given by processors, (median mark 3).

Table 5. Perception of criteria and constraints for food choice: testing of differences between processors and retailers – Mann-Whitney test.

	Test statistics[1]	*P*-value
Criteria		
Price	-1.149	0.251
Taste	-2.497**	0.013
Safety	-0.149	0.881
Freshness	-3.217***	0.001
Health	-0.782	0.434
Label	-0.555	0.579
Constraints		
Price	-0.125	0.900
Econ. difficulty	-1.544	0.123
Nutrition knowledge	-1.337	0.181
Availability	-0.329	0.742
Habits	-0.239	0.811

[1] Significance level: ** Significant at 5% level; ***Significant at 1% level.

Table 6. Factors of future demand toward dairy N&H claimed products: testing of differences between processors and retailers – Mann-Whitney test.

Factors	Test statistics[1]	*P*-value
National policy	-0.533	0.594
Nutrition knowledge	-2.738***	0.006
Health	-1.423	0.155
Public policy	-2.504**	0.012
Purchase power	-1.599	0.110
Lifestyle	-2.240**	0.025
Fashion	-1.703*	0.089

[1] Significance level: * Significant at 10% level; ** Significant at 5% level; ***Significant at 1% level.

Discussion and conclusions

This paper covers three aspects based on empirical analysis. Firstly, the differences with respect to processors' and retailers' motivations and barriers to developing dairy vs. other products with N&H claims were investigated. Secondly, the perception of consumers demand and behaviour towards these products were analysed. Finally, the differences in perception of the future consumption potential for these products were evaluated.

In cases of stated motives (profit, image, responding to consumer demand, following EU trends and market position improvement), processors of dairy category products do not have different attitudes compared to processors of other category products. Furthermore, differences in motivations between retailers do not exist. Both, producers and retailers included in the interviews are leaders at national or regional food markets. Their motives to produce or sell N&H products are general – to maintain a good image of the firm, to respond to consumer demand and to make a profit. However, if we look only at dairy products, a significant difference between processors' and retailers' motivations exists. While the most important motivation for retailers is to improve the image of the company by offering N&H dairy products, dairy processors do not consider image as the most important motivation. Dairy products are classified by the processors as products that cover basic nutrition. As a consequence, competition between different distribution channels might be higher than for other product categories explored in these interviews. From the processor point of view, it can also imply the conclusion that consumers demand for dairy N&H claimed products is not as high as for conventional products in this category in WBC markets. It seems that the market is more producer than consumer driven.

The processors in the dairy sector mark problems in the same way as processors of other categories. Regulations are the most important problem that processors in different countries in the region are faced with. In some countries it is new legislation that came into force recently (Slovenia and Croatia). In other countries the legislation on health claims does not yet exist (Bosnia-Herzegovina, Macedonia, Montenegro and Serbia). Additionally, the retailers operating in an unregulated WBC market report significant difficulties in their relationship with producers originating from countries with regulated N&H markets. It might indicate existence of unfair competition based on highly debatable health claims that can mislead consumers in still unregulated conditions.

The dairy processors advocate for more public involvement in the functioning of the sector. At the same time, they primarily think about different supportive measures in the form of state subsidies for increasing of a so-called healthier supply. On the other hand, public policy changes are seen only by retailers as one of the most important factors of WBC N&H claimed products market development.

It seems that processors do not expect significant change of public policy in this area. It also implies that consumer demand will not change significantly due to inconsistent public support both in the terms of processors incentives to offer and promote these products, as well as to increased consumers diet-related knowledge through public health programs.

The consumer profile of N&H claimed dairy products in WBCs, described by producers and retailers in our study, is that of younger and senior females, with higher or middle income, at least secondary educated, both with and without health problems, and living in urban areas predominantly. Additionally, the dairy processors argue that differences exist between consumers of different N&H claimed product groups. They consider milk-yoghurt-cheese consumers more oriented toward taste and safety criteria than the consumers of other product groups observed in this study. Also retailers think that consumers of this product group have unique characteristics – they are more orientated toward freshness criteria when buying and consuming dairy products.

Eating habits are the most important constraint to consumption of dairy N&H claimed products. As for the importance of other criteria (price, health dimension, labels and indication of origin), neither processors nor retailers of dairy products gave statistically different responses in comparison with other category groups. Generally, a health motive as the factor for food choice is less important than price and taste. Our study also indicates a low importance of labels and indications of origin in the WBC market for consumer choice of food. However, the availability of the observed dairy product group is considered better than for the other groups of N&H products. The reason might be found in the fact that the WBC N&H claimed products market started to develop first in the dairy sector. Most of these products were launched by domestic companies before the year 2000 (except for cheese). As a consequence, consumers are better informed about this product group than about other N&H claimed products which have been recently introduced in the market. This is also confirmed by producers and retailers opinions on consumer knowledge – they strongly argue that this factor will have no significant influence on demand for dairy products in the future. In conclusion, other N&H claimed products are considered to have a slightly better perspective in terms of future market growth in the WBCs than dairy N&H claimed products.

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Market trends and consumer behaviour relating to organic products in the Western Balkan Countries

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Abstract

Organic agriculture in Western Balkan Countries (WBC) has promising perspectives. Natural resources of extraordinary richness, heterogeneity and quality are primary preconditions for a prosperous agriculture in general, and also for organic agriculture and wild plant collection. The market and consumption situation can be described as 'patchwork'. Some elements reflect the early beginning of the organic sector in Western Europe, with direct selling, short supply chains and little processing. On the other hand, committed, strategic and highly professional market actors show within the WBC organic markets successful examples of marketing of organic products and efficient organisation of supply chains. Generally, preconditions for further positive market development are fulfilled. It is the current heterogeneity that illustrates best the potential of the organic sector in WBC, both at the production and consumption levels. Some macroeconomic and transnational factors, like the economic slowdown in Europe or the world-wide financial crisis, might hinder the development of the organic sector as they limit access to financial resources and slow down the broadening of a 'middle class' with more wealth and purchasing power. Apart from these factors, which are difficult to influence, the barriers to be overcome are rather typical for young markets: aggregation of critical volumes, constitution of critical production basins, producer organisation, professionalization, scaling up, and information for and communication with consumers. These are the main areas where weaknesses exist today.

Keywords: organic products, market trends, consumer behaviour, Western Balkan Countries

Introduction

Organic food production should contribute to an improvement in the quality of human life, preservation of the natural environment and protection of animal welfare. This system of production works in accordance with the principles of sustainable development (Gladvin *et al.*, 1995). There is a European consumer trend of growing interest in organic food products. This parallels the overall trend towards a more health-oriented life style and growing concerns about sustainable development (Hjelmar, 2011; Ozimek and Zakowska-Biemans, 2011; Ruiz De Maya *et al.*, 2011).

The production of organic products started to develop in Western Balkans Countries (WBC) only recently. The market for organic products is still a niche market. The consumption of organic products is still limited and at very low level but with the expectations of growth. As consumers of organic products are difficult to identify in all WBC, and comprehensive data on the organic market is not available, the aim of this paper is to better understand consumer demand as well as the situation in the market. This is achieved through an experts' survey built according to the Delphi methodology. The paper is organized in five parts. The first part provides a short description of the current situation of the organic sector in WBC. In the second part, the analyses and results of the experts' survey are presented covering all six WBC. The third part of the paper deals with some comments on consumer behaviour, and the main conclusions about organic food development in the WBC are presented in the fourth part.

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Overview of the organic sector in WBC

The WBC consists of six countries: Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia and Slovenia. The WBC organic markets are, compared to some of the organic markets in Western Europe, relatively young, very small and in an early stage of development as described by Renko *et al*. (2010). In the last twenty years 'organic production' existed in the form of single farmers or small groups of farmers, who experimented with alternative agricultural methods, without using agrochemical inputs. Their main concerns were their own health, the quality of their products and the health of customers. They searched actively for new ways to produce, process and market food but, at this early stage, these alternative agricultural methods were not necessarily called 'organic' production. During the last decade, from the year 2000 onwards, the organic movement in most WBC countries experienced new dynamics, pushed by farmers' associations, market supply chain actors, consumer groups and agro-food policy. Significant influence also came from the legal framework established in the EU that WBC policy makers often want to adopt. In addition, entrepreneurs and market actors from WBC together with some foreigners, who invest in WBC organic supply chains, wanted to have an EU-compatible legal framework established in WBC. These forces pushed for official recognition and labelling of organically produced and processed products. Once a legal and institutional framework on production and labelling is established, an enhancement of produced quantities and qualities can be observed.

The organic market by country

The status of the organic sector and market for all WBC are described, utilizing the FP7 Focus Balkan study of Renko *et al.* (2010, 2011). Some general statistics on these countries are presented in Table 1.

Slovenia

Among the WBC, Slovenia was apparently the first to establish a legal framework for organic agriculture. Slovenia is today the only WBC member of the EU. It is well developed on the basis of Gross Domestic Product (GDP) per capita and other macro-economic criteria. The first consumers of organic products were a small group strongly motivated by ecological and health concerns. Around the year 2000, organic consumption started to broaden. Presently, the share of organic production is higher than in the other WBC and very close to the EU-European average. However, the domestic supply does not cover the demand. That is why a lot of imported products, mostly processed food items, are sold in supermarkets, health shops and online shops. The distribution of organic products started very early in conventional retail and is now dominated by the distribution channels with a market share of 60%. The supermarkets play an important role in raising awareness of Slovenian consumers to organic products. The number of specialized organic shops is growing slowly (see for description of market chain Pohar and Klopčič (2012). Now, Slovenian organic consumers can be characterized as trend-followers with high-income. To know the origin of the products, with preference for domestic products and producers, is important to them. They mostly consume organic products for health reasons (Klopčič *et al.* (2012). In the future it is important to strengthen the domestic supply of organic products.

Croatia

The organic food market in Croatia is still at an early stage of development, but the number of organic farms and enterprises is increasing. Croatia is, in terms of organic agriculture, more developed than most other WBC, but less developed than EU countries. The share of organic production as part of total production in Croatia is 1.1%. In most other WBC it is less, but in well-developed EU countries, for example in Denmark it is 5.4%, in Spain it is 3.2% and in France it is 2%. Like the other countries in WBC, Croatia has good possibilities for organic production because of a low level of agrochemical usage in agriculture in general. Farmers are, thus, less dependent on agrochemical

Table 1. Data on organic farming in the Western Balkan countries.

	Bosnia	Croatia	Macedonia	Montenegro	Slovenia	Serbia
Organic production as % of total agricultural production[a]	0.03	1.10	0.14	0.9	6.01	0.17
Organic agriculture land use in ha: converted area controlled according to EU regulation (2009)	580	14,194	988 (1,489[a])	4,600	29,388	8,661
Number of producers (2009)[a]	27	817	197	67	2,096	2,969
Number of processors of organic products (2009)	27[a]	95[a]	18	5[a]	40 (86[a])	25 (22[a])
Market share of the organic market compared to the entire food market (%)	-	0.8	-	-	<1 (2009)	0.01 (2008)
Total turnover of the organic food market on consumer level (million €)[a]	1	40	-	0.1	34	40
Annual expenditure on organic food per capita (€) (2010)[b]	~1	~9	-	~1	~17	~5

[a] Willer and Klicher (2009). [b] Schaer (2011).

Table 1A. Main organic farming products in the Western Balkan countries (Vittuari, 2011).

Country	Main organic products
Bosnia	mushrooms, buck-wheat flour, honey
Croatia	fresh fruit and vegetables, pickled and processed vegetables, cereals and flours, organic meat, juices and jams, honey, wine
Macedonia	organic cereals, fruit and vegetables, sheep and goat cheeses, grapes, honey
Montenegro	wild plants, fruit, dairy products
Slovenia	basic foods, fresh vegetables and fruits, processed plant products, organic meat, cereals and flour, dairy products
Serbia	frozen red organic fruit, tomato sauce and ketchup, plum sauce, medicinal herbs, juices and jams

input and can more easily convert to organic farming. The conversion rates are elevated and the channels of distribution are also quite well developed, with wholesalers, retailers, and specialized supermarkets for organic products, specialized retail shops and even on-line selling. Consumers are becoming more interested in buying organic products and further market growth is expected.

Serbia

In Serbia, after the law on organic food was established, the production, labelling and selling of organic products was regulated so that organic food is now available in all bigger towns, as well as in supermarkets, specialized retail shops and in the traditional open green markets. The most important organic products are wild and cultivated fruits and berries, but also wild and cultivated medicinal

and aromatic plants. The vast majority of the production is exported as raw material to EU countries. In Serbia, organic products are traditionally sold directly (farm-gates and open markets) or through health food shops. Other than in Slovenia and Croatia, conventional retail plays a minor role in the marketing of organic products. Consumers of organic products are described as being younger (aged 20-40 years), well educated, urban, mostly female and with a high income level. Organic products are in concurrence with products from specific regions. Most Serbians are unwilling to pay elevated price premiums for organic products. Awareness rising of consumers and the amelioration of the infrastructure are important future tasks.

Bosnia and Herzegovina

Bosnia and Herzegovina (BiH) seem to have a big potential for more organic farming. Because of the low consumption of fertilizers and pesticides, BiH's traditional small-scale agriculture can quite easily convert to organic. Currently, the only developed markets are for the export of raw materials from wild plants. Due to the complex politico-administrative situation of the country, a legal framework for the organic sector exists only in one entity of BiH, Republika Srpska. Farmers' associations for organic agriculture are pushing for a better structure and a better framework for organic farming. A regulatory body operates according to IFOAM (International Federation of Organic Agriculture Movements) standards. The organic sector is dynamic and linked up internationally. There is wide panoply of small market actors who are mainly involved in the collection of wild fruits, plants and mushrooms, in the conditioning and processing of these products, and their export to western European countries. The scope of production is very wide, with many different products, but often in small quantities. The domestic supply chains for the main commodities like milk, cereals, beef and vegetables are still at an early stage of development, mainly farm sales or sales in green markets, with often no price premium for the organic produce. The practices of organic farming and processing and the quality of products have still to be improved. Consumers are increasingly aware of health and sustainability issues, but their willingness to pay more for organic products is strongly limited, due to their low purchasing power. A national regulation, better labelling and clearer information about organic produce would enhance consumption.

Montenegro

In Montenegro the starting position for organic agriculture is similar to in BiH. Organic production is still in its infancy and dominated by wild collection. But the important in-conversion surfaces show the high potential and growth perspectives of organic agriculture in Montenegro. The organic market started in 2001. At that time, priority was given to information and education. After that, the focus changed to the establishment of laws and certification structures. The absence of expertise and infrastructure for distribution and processing, and the fact that most activities are carried out by foreign companies, predisposes to an export orientated market. The domestic market is developing slowly with just a few outlet points of organic products.

Macedonia

Macedonia is also at an early stage of organic agriculture and food marketing development (Sekovska and Bunevski, 2012). Further growth and development of organic food are expected. A well-structured non-governmental organisation (NGO) for organic farming and a committed national policy drive the organic sector. Domestic processing is concentrated on the conditioning of the products of wild collection. The sector is traditionally linked to international supply chains and is export-oriented. Domestic supply chains are short and lack, on the one hand, sufficient quantities of produce and, on the other hand, sufficient marketing possibilities. Indeed, organic distribution is in its infancy with farmers' markets playing a pioneering role. There is little knowledge of Macedonian consumers' perception of organic products (Sekovska *et al.*, 2012).

Experts' survey

Organic food sector development in the WBC was studied using the survey method and Delphi methodology (Renko *et al.,* 2011).

Delphi methodology

The objective of the Delphi approach is a reliable and creative exploration of ideas or the production of information suitable for decision making. It attempts to obtain a reliable response to an issue from a group of experts (Okoli and Pawlowski, 2004). The process guides the group towards a consensus (Linstone and Turoff, 1975). The method has been mainly used to generate forecasts in different fields (Landeta, 2006). In this context it is also used for environmental, marketing and sales forecasting.

In this research project, three 'rounds' of the Delphi approach were planned. The procedure had the following four steps (Padel *et al.,* 2003):

1. expert identification and recruitment;
2. definition of 1st round questionnaire;
3. introduction of questionnaire to the panel of experts; and
4. collection of individual opinions of the experts.

On the basis of the first round outcome, the relevant items were posted. These items (questions) were, in the second round, evaluated by each expert by means of a structured questionnaire and a five-point Likert scale. Level of consensus for each particular question was calculated by counting of agreed answers (agree and strongly agree). A round continues to a pre-determined consensus level or until no further consensus can be reached. McKenna (1994) suggested that consensus should be over 50% agreement among respondents. Sumsion (1998) recommended 70%, while Green *et al.* (1999) suggested 80%. For this study, the minimal acceptance level was taken to be 50%. In the past, the Delphi technique used to have three to four rounds. Latest experience (Beach, 1997; Proctor and Hunt, 1994) suggests that in the majority of cases two rounds are sufficient. In fact, the number of rounds differs from case to case depending on the number of experts, the subject in question and the complexity of the issues involved. Expert panel sizes differ from 8 to 20, but for the less developed markets in WBC it could be 4-12 because of the smaller number of experts available.

The main goal of this study was to identify questions which have predominant support (or reached a level of consensus above 50%) from the experts. Thus, the experts had to say if they agree or not with each particular question. As the method is based on a structured process of collecting knowledge from a group through a series of questionnaires, the aim was the elaboration of prospective reflection in their field of activities. In this study three different questionnaires were applied:

- First a questionnaire was submitted to the group of experts in each of the WBC.
- Then the report was prepared and sent to the same group of experts in order to get initial feedback. At this stage a second questionnaire was submitted.
- After processing the data from the second questionnaire, a third questionnaire was prepared and sent to the same group of the experts in order to get final feedback.

All three questionnaires were well adapted to the general objectives of the survey and allowed the experts to comment on:

1. the current situation of the organic market in each country and the organisation of the supply chain;
2. forecasts of the experts in relation to organic market development.

The experts' responses to the questionnaires were anonymous. In a Delphi study, the participants do not interact with each other. Members of the expert panel in the 6 WBC were selected in an informal way asking the different participating institutions for the experts in organic food on the basis of experience, knowledge and personal contacts. They can be split into three categories (Table 2):

Table 2. Sample characteristics of Delphi 1st, 2nd and 3rd round.

Country	No of experts (round)			Gender		Time involved (years)[1]	Institution where experts are employed
	1st	2nd	3rd	F	M		
Bosnia and Herzegovina	6	6	6	3	3	5-10	1. Public Health Institute Bosnia and Herzegovina 2. Ministry of Agriculture Republika Srpska 3. Faculty of Agriculture Banjaluka 4. Private company certified organic
Croatia	8	8	8	6	2	5-30	1. Faculty of Agriculture 2. Faculty of Economics & Business 3. Food Agency 4. Podravka 5. Bio&Bio 6. Konzum 7. Ministry of Agriculture 8. Croatian Consumer Association
Macedonia	4	3	3	3	1	10	1. Faculty of veterinary and medicine 2. Ministry of Agriculture 3. Private organic farmer 4. Certifying body
Montenegro	3	5	5	2	3	5-10	1. Monteorganica – public certification body 2. Ministry of Agriculture, Forestry, and Water Management 3. Biotechnical Faculty Podgorica 4. Biomontnegro'NGO' Healthy food production 5. Agrovita Eco
Serbia	8	8	8	5	3	3-10	1. Ministry of Agriculture, Forestry and Water Management Republic of Serbia 2. Bioagricert, Belgrade – Organic certification body 3. Bio-planet, Belgrade – Association for organic production and trade 4. Zdravo Organic doo, Selenca – Agricultural producer and processor 5. National Association of Organic Producers – Serbia Organica, Novi Sad 6. Bio-market Tartufo – Trader of organic products, Belgrade 7. US Embassy Belgrade – Agricultural Specialist 8. Fond Organska Srbija, Belgrade – Association of agricultural producers

[1] Number of years the experts are involved in the organic sector.

Table 2. Continued.

Country	No of experts (round)			Gender		Time involved (years)[1]	Institution where experts are employed
	1st	2nd	3rd	F	M		
Slovenia	10	14	14	6	8	5-15	1. Ministry of Agriculture, Forestry and Food of the Republic Slovenia 2. Control/certification body – Institute KON-CERT Maribor 3. Biotechnical faculty 4. Department of Animal Science of Biotechnical Faculty 5. Chamber of Agriculture and Forestry of Slovenia 6. Agriculture Extension Service of Slovenia 7. Union of Slovenian Organic Farmers Associations (USOFA) 8. MERCATOR d.d. Ljubljana 9. TUŠ d.d., Celje 10. Organic shop 'Kalček', Ljubljana 11. Chamber of Agricultural and Food Enterprises, Ljubljana 12. IKC (Institute for the control and certifycation of University of Maribor) 13. Consumer Association of Slovenia 14. Biotechnical Centre Naklo (with organic farm and organic shop)
Total	39	44	44	25	20		

[1] Number of years the experts are involved in the organic sector.

1. stakeholders of the organic supply chain: producers, processors, wholesalers, retailers, importers and exporters of organic products;
2. policy makers/regulators/NGO's: authorities, certifying organisations, public health institutes, consumers organisations;
3. researchers: academics, private agencies.

Results of expert survey of development of organic food sector in Western Balkan Countries

Delphi 1st round results in WBC

After analyzing the results of the first Delphi round it was possible to conclude the following:

- The most important requirements for the development of the organic market in WBC were: implementation of national and EU policies and regulations on organic production and processing; government initiatives for certification of organic food, and financial incentives for the organic farmers (refund of certification costs, costs of promotional materials, organisation of trade fairs).
- Organic markets of WBC are in the initial phase of development. Compared to the Western European countries there is a smaller production volume and lower consumption.

- The WBC have good preconditions for organic production because of unpolluted natural resources (due to low intensive agriculture in the past).
- Export of raw organic produce, import of processed organic food, faster development of the number of organic farms, and increases in consumption will influence the development of the organic market in WBC.
- There is a limited range of organic products on offer in terms of diversity and quantity.
- Awareness and knowledge of how to produce those products is insufficient. There are also a very limited number of consultants with experience in this field.
- The biggest problem is that the organic products market is not sufficiently organized. For instance, development of good distribution channels is necessary to intensify contacts between farmers and consumers through supermarkets and exporters of agricultural products.
- Over the next ten years, the importance of the organic market will grow. Consumers will trust local producers the most as they are more easily monitored. Therefore, the local market will mainly gain in importance. In the supermarkets the range of products on offer will also become larger and more diverse.
- Consumers' motives for buying organic food are health, trend, prestige and environmental awareness. The population segment with higher income and higher education, 25 to 40 years of age, and urban, is the main consumer group since they tend to provide healthy food for the whole family.
- Organic production has great influence on economic, ecological and social development, because of the creation of a niche market offering possibilities for employment and healthier food for the consumers with a positive influence on the environment as well.
- Consumers need to be more informed about the organic method of food production.
- Experts are aware of many opportunities for market development, as for example (agro-eco) tourism, public procurement (schools, hospitals, door to door, internet).

Delphi 2nd round results in WBC

This round led to following additional conclusions:

- A national development strategy for organic farming is very important and will be even more so in the future.
- Local government support is essential for the development of the organic agriculture. State and local government can significantly improve the market by buying organic food and products for schools and hospital kitchens.
- Motivation of producers is important for development of the organic sector. Teaching and training support is important for the present as well as the future. Financial consolidation of organic farms is necessary, in which higher subsidies play a very positive and motivating role.
- Clear labelling, tracking and tracing, and certification of organic products is necessary to enhance market development, and will continue to be so in the future. Also, experts think that the Government should put special emphasis on the control system.
- In none of the investigated countries experts consider there is a market for organic meat products. For milk, fruit, vegetables and baby food a more or less comparable situation exists (however, there are differences among countries). There is no market perspective for organic products in urban touristic towns and rural touristic and remote areas. In the future this may change.
- Marketing for organic products has to be improved. Distributors have greater bargaining power than producers. Horizontal cooperation among organic farmers is not well developed in WBC, except in Macedonia. Vertical cooperation and definition of strategy are needed for development of the organic sector. These forms of cooperation will be even more important in future. Almost nobody supports the statement that distribution channels for organic products are numerous and diversified. Expectations go strongly in the opposite direction.
- Organic farming is not seen as a factor of success for the agricultural sector in WBC. This is expected to change somewhat because the organic sector brings new possibilities for income

and labour. For instance, one opportunity is eco-tourism, which is expected to grow significantly in the future.
- Health concerns are very strong motives for buying organic food, and this is expected to continue in the future. Key promotional activities now and in future are education and information transfer to consumers. A main characteristic of the organic consumer is a high level of education. This is expected to be less important in the future.
- Local and traditional agriculture, small scale agriculture and traditional processing in Croatia and Macedonia do not provide a motivation for buying of organic food. This is expected to change in the future.

Delphi 3rd round results in WBC

This round led to the following further conclusions:
- The influence of the EU Common Agricultural Policy will push organic farming in WBC.
- Unsatisfactory state incentives with consensus level above 50% were noticed in BiH, Croatia and Montenegro. In Croatia, Macedonia and Serbia experts expect political support to be higher in the future, while in the other three WBC, BiH, Montenegro and Slovenia, experts do not expect any change in this respect.
- The most important market variables are adequate marketing activities and clear labelling of organic products. The market for organic products will be in urban areas and somewhat less in tourist areas. Promising categories of organic products are: fruit, vegetables and imported organic products. The lowest support was expressed for meat.
- Issues concerning the distribution channels reached the highest level of consensus in all the examined countries. The highest possible scores (100%) in all countries were obtained for the issue 'Importance of the distribution channels – organic food store'. Slightly lower scores were given to 'Better organisation of the supply chain – transparency', 'Better organisation of the supply chain – traceability' and 'Better organisation of the supply chain – quality management'. The lowest interest was for the 'Importance of discounters'.
- Concerning consumer behaviour, eight items received full support from the experts in all countries. The most pronounced were: 'Motivations – health concerns' and 'Promotional activities in education and information of consumers'. The other items supported by experts were: 'Consumers awareness of organic food is increasing', 'Consumers trust toward organics depends on labels/certificates', 'Consumers trust toward place of purchase', 'Consumers trust toward brand', 'Consumers are more aware of health' and 'Organic consumption will became a part of lifestyle'. The lowest support in all countries is expressed for: 'The main organic consumers will be elderly people' and 'Prices of organic products will be too high'.

Consumer behaviour and organic food

During the last decade, the organic movement in the world experienced new dynamics (Zakowska-Biemans, 2011). From 1999 to 2011, the global market for organic products increased by 235%. Europe and North America held the leading positions in that growth. Countries with the largest market for organic products are USA, Germany, United Kingdom and France (A. Sahota, personal communication). The highest consumption of organic products per capita is in Denmark (€139 per year), Switzerland (€132 per year) and Austria (€104 per year) (T. Vaclavik, personal communication; Willer and Kilcher, 2009, 2011). Latest developments in the European organic market include oversupply, price sensitivity and declining prices (A. Sahota, personal communication). The year 2010 was a year of consolidation in standards and regulations in the EU (Willer and Kilcher, 2011).

The global trend of converting from conventional to organic agriculture is followed by countries of Central and Eastern Europe, such as Croatia (Renko *et al.,* 2010). The consumption of organic food per capita in Croatia is still very low and amounts to €1 per year (Renko *et al.,* 2010, 2011).

Organic market and organic consumers have attracted the attention of researchers in many European countries. Cerjak *et al.* (2010) determined what motivates consumers to buy organic food in Croatia, BiH and Slovenia. In Europe, research was carried out to determine preferences and determinants of the occasional organic consumer for organic, conventional and conventional-plus products in Germany and Switzerland (Stolz *et al.,* 2011); an examination of consumers' motives for food choice and an attempt to reveal beliefs about organic food in Poland was carried out by Zakowska-Biesmans (2011). Ruiz De Maya *et al.* (2011) analyzed the market for organic products in eight European countries, based on differences in their respective value systems, while Hjelmar (2011) conducted a study of the purchase of organic food products by Danish consumers and the main factors driving that process. The motivation for the purchase of organic food is driven by health concerns, sensory properties, food safety and ethical concerns (Baker *et al.,* 2004; Chinnici *et al.,* 2002; Lockie *et al.,* 2004; Magnusson *et al.,* 2001; Tregear *et al.,* 1994). Consumption of organic food is becoming a part of the lifestyle of modern consumers (Hall, 2008). Among other factors that motivate consumers to purchase organic products are the following: taste, freshness, animal welfare and support for the local economy, a new trend, prestige and luxury (Cerjak *et al*., 2010; Chinnici *et al.,* 2002; Hall, 2008; Hughner *et al*., 2007; Krystallis and Chryssohoidis, 2005).

Based on the experts' insights into the market as recorded in this study, consumers' motives for buying organic food are health, prestige and environmental awareness. These opinions are in line with previous research findings on consumer motivations for purchasing organic food. These emphasize health, environmental concerns and animal welfare as key motivational factors (Cerjak *et al.,* 2010). In addition, the experts' findings are in accordance with consumer motives in other European countries such as Austria and France, where health represents the key motivational factor. However, motives vary among countries. While in Austria consumers highlight responsibility for children and support for regional development, in France emphasis is placed on taste and respect for the living world (Zanoli, 2004). Danish consumers, whose organic consumption is relatively higher in comparison with other European consumers, are driven primarily by health concerns as well as perceived benefits in quality and taste together with environmental awareness (Hjelmar, 2011). In Slovenia, consumer perception towards cheeses and sausages were analysed (Klopčič *et al.,* 2012). Organic products were compared with regular, protected designation of origin (PDO), mountain and farm made cheeses and sausages. A sample of, respectively, 211 and 118 consumers, was studied. Organic cheeses were perceived as more healthy than regular and farm made cheeses, but also higher in price. Organic sausages were considered healthier than the other product categories, and more sustainably produced with better taste than regular sausages. However, organic sausages were seen as being higher priced than all other categories and less convenient to buy than PDO and farm sausages. Furthermore, availability of organic food is an important issue. Danish consumers emphasize the importance of availability of organic food and convenience when shopping because most of them are pragmatic. In Denmark, approximately 85% of organic food is sold through supermarkets (Hjelmar, 2011). Taking into account that the increase in demand for organic food in most WBC is limited due to lack of supply and availability, more attention should be directed towards for instance Danish experiences which can offer guidelines for further development of the organic sector.

Conclusions

There is a growing interest by the consumers in organic food products in WBC. This parallels the overall trend towards a more health-oriented life style and growing concerns about sustainable development. Committed market actors, farmers associations, stakeholders in rural development and environmental protection, consumer associations and policy makers act in favour of the expansion of the organic sector in all WBC.

After analysing the results of three Delphi survey rounds on the present and future development of the organic sector in WBC, all experts reached the consensus that the organic market in WBC is in

the initial phase of development, but with great preconditions for organic production in the future. Consumers' main motives for buying organic food are health, prestige and environmental awareness.

In the future, the importance of the organic market will grow in WBC (tourism, agro/eco tourism, schools and hospitals). Experts ranked the categories of organic products which will dominate the market in future as follows: fruit, vegetables and imported organic products. The lowest support was for meat.

For the development of the organic sector in WBC, all experts reached the consensus that a national strategy for organic farming is needed, as well as regional and local government support. They all highlighted as important elements for a strategic approach: teaching and training of producers and consumers, motivations of producers, financial consolidation and horizontal cooperation, and labelling of organic products.

State and local government can significantly improve the market by acting as a 'pioneer buyer' for example through the systematic provisioning of school and hospital kitchens with organic food and products.

Experts believe that the Government should put special emphasis on the control system and certification of organic food. There are split opinions among experts in different countries regarding state incentives and political support for the organic sector. Several countries (BiH, Croatia and Montenegro) experts expressed doubts whether the policy measures will be adequate to market needs in the future. Experts in Macedonia, Serbia and Slovenia are more confident with regard to future policy development. None of the experts are satisfied with the political support at present. In Croatia, Macedonia and Serbia they expect political support to be higher in the future, while in BiH, Montenegro and Slovenia experts do not expect this support to improve.

The expert panel is convinced that the EU Common Agricultural Policy will push the development of organic farming in WBC.

Health concerns are very strong motives for buying organic food in WBC. All experts consider increasing promotional activities, education and information of consumers to be of great importance.

Motivation of producers is considered to be important for development of the organic sector. Teaching and training for organic farming is very much needed at present and will be for the future. Financial consolidation of organic farms is necessary and experts hope that farmers will be more motivated to switch to organic farming when higher subsidies become available in the future.

Today, horizontal cooperation among organic farmers is not of much relevance in most WBC, but experts agree that in the future this needs to change.

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Review of stakeholders influencing food chain in Slovenia in the context of food consumer science

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Abstract

The stakeholders affecting functioning of food chain in Slovenia are reviewed taking into account the context of food consumer science. All segments directly or indirectly connected to the food chain are described. The deliverers of food, i.e. producers, processors and distributors, and the consumers' life and consumers' mind/culture are given main consideration. Interrelationships are discussed between these groups themselves, and between these groups and administrative bodies such as research and educational organisations, facilitators, investors and media.

Keywords: food chain, interaction, functioning

Conceptual framework

Food consumer science could easily be considered as a synonym for, or a hybrid of, two distinct sciences. On one hand, there is the part that might be regarded as 'hardware', i.e. science about food or food science, while on the other there is the part that might be designated as 'software', namely science about consumers or consumer science. Food consumer science is thus intended to overcome such differences and pursues a holistic approach towards hardware (referring in particular to natural sciences such as chemistry, biochemistry, microbiology and process techniques) and software (i.e. social and humanistic sciences, mostly sociology and psychology). The latter should tell us why, when and how the consumer will consume food, while the first should examine how food is produced and processed. In addition, it could include a study of the impacts of the food on the growth, development, and health of the human being. If food science was restricted to the mere study of the production of food, it would be more correct to speak about food production science which – when studying the food industry in particular – could also be called food technology science. Then food is not studied as a consumer/consumable product but rather as a factor influencing growth, development and health, and where the consumer is considered merely one of the living organisms (higher mammals), ignoring the psychological and focusing only on the physiological component. Both parts – i.e. food science and consumer science – meet in an interface usually designated as nutrition science.

Food consumer science thus comprises three parts, namely production, consumption, and nutrition. These three parts are of course interdependent and thus (more or less closely) related. The stakeholders in the first group primarily include producers and processors of food; in a broader context, distributors could also be included since we are interested in all the stakeholders that ensure that consumers reach food or that food reaches the consumers. The second group features one stakeholder only – the human being which could be considered from two different perspectives, either as consumer of food (in the sense of a mere physiological component) or as buyer of food (in the sense of the psychological and sociological component). To better understand this logic, we could refer to Henrique's theory of the Tree of Knowledge (Henriques, 2003). From a physiological point of view, the consumer may be regarded as consumer-life, while from the psychological and sociological point of view we refer to them as consumer-mind/culture. For the purposes of this report, the word 'consumer' with no suffix means consumer 'as a whole'.

In this study, we will review the main stakeholders in the food chain, being the producers, processors, distributors and consumers in their role of dissemination and application of knowledge. We will treat

food production and distribution (in fact the deliverers of food) and consumers. For certain analysis consumers will be treated separately for two aspects: mind/culture and life.

The food production-distribution and consumer groups are characterised by associations into formal and informal interest groups (Consumers' association, Cooperative association, Food Industry Commercial Association, etc.), each of them featuring as a new stakeholder. We will review also the role of these stakeholders generally named as Associations. Other organisations and institutions play an indirect role in supporting, controlling or promoting the food chain. These organisations and institutions with their roles briefly described below will be analysed separately in this review.

The production and consumption of food take place within a certain society with prescribed legal rules. In principle, these rules serve to regulate the relationships among the subjects within a certain system or, in other words, to protect a group (in our case a stakeholder) from other group(s). In most cases, in food consumer science, such applies to the protection of consumers from the stakeholders of the first group (food production and distribution). The rules are of course drawn up and implemented by the executive authority, but the competences for implementation may be delegated to authorised organisations. All stakeholders featuring in such groups are here named Administrators. A competent implementation of specific tasks within each group – production, consumer and nutrition – requires properly trained human resources. Training is provided by several institutions where courses are offered for various positions at various levels. Training institutions thus represent another group of stakeholders which we name Educators. New skills, either basic or applied and specific to each of the three groups, are generated within research institutions (Researchers), which are either public or private. Identifying new skills and providing training require adequate financing which is provided by the stakeholders named Investors. These too, are either public or private. Knowledge is transferred into practice and to the public through both formal and informal channels. A distinction may be made between the transfer of knowledge to the end-users and the transfer to intermediaries, those that will transmit such knowledge to the end-users. The stakeholders involved in the transmission of knowledge are named Facilitators. A particular role in the transfer of knowledge is played by certain media which we may consider as 'transferors'. We will consider this group as special stakeholders (Media) within the Facilitators group.

In this study, in addition to the analysis of stakeholders also the relationship between some stakeholders will be described.

Deliverers of food: producers, processors and distributors

The main stakeholders involved in the supplying of food to consumers are described. Special attention is devoted to the associative structures in the three compartments of the food delivery chain.

Producers

Producer data

The present situation in Slovene agriculture is mainly attributed to two external factors: the natural predisposition for agriculture and being a full member of the European Union (EU). Over 60% of the territory of Slovenia amounting to approx. 20,000 km^2 is covered by forests. About one third of the surface is suitable for agriculture, 75% of which lies in areas less favourable for farming, which means that productivity is lower and production costs are higher than in better farming areas. Of the total area favourable for farming, 60% consists of permanent grassland. The fact that Slovenia is a full member of the EU implies that its agricultural policy fully complies with the Common Agricultural Policy (CAP), thereby retracting national agricultural policy (MAFF, 2007).

The total area of agricultural land in Slovenia amounts to approx. 500,000 ha and comprises over 70,000 agricultural holdings (in 2007), which means that the average farm size is about 6.5 ha. The annual value of agricultural production reaches €1000 million, and the gross value added is slightly below 50% of the value of agricultural production. The main agricultural sector is livestock farming. Agricultural holdings employ almost 180,000 people, mostly part-time. In terms of full-time equivalents, this number drops to less than 90,000. The number of full-time employed, who are either farmers or members of their families, is about 15,000. In terms of full-time equivalents, farms also employ about 6,000 people who are neither owners nor family members, 1,500 of which are employed full-time. This means that farms in Slovenia are predominantly family-run businesses (MAFF, 2010). A problem faced by Slovenian agriculture is the age structure of farmers. However, on farms larger than 10 ha the age structure is more favourable (Cunder, 2001).

Slovenian agriculture contributes less than 2% to the gross domestic product, although it employs about 10% of the total active population. The gap between these two numbers clearly shows that the productivity of agriculture is low compared to other sectors of the economy or compared to average agricultural productivity in the EU-27. The gross value added per labour unit in agriculture in Slovenia reaches about 40% of the EU-27 average. This low productivity results from the large share of areas with unfavourable conditions for agriculture as well as from the unfavourable size structure of farms, the fragmentation of holdings, and the low level of specialisation. Structural changes were rapid in the 1990s but have slowed down over recent years, although they are directed towards increasing the number of large farms and reducing the share of small farms (MAFF, 2010; Vrišer, 2002).

Producer associations

Agricultural cooperatives and the Cooperative Association of Slovenia

By a law adopted in the early 1950s, a private person can own no more than 10 ha. As a consequence a large area of land was nationalized and managed by socialist enterprises known as *agricultural combinates*. For small private farms agriculture cooperatives were formed. In the 1950s, Slovenia had almost 600 agricultural cooperatives with over 120,000 members. Afterwards the authorities began to merge cooperatives with agricultural enterprises in order to lower the 'antisocialist influence' of private farmers. By the end of the 1960s, the number of cooperatives already decreased to less than 80, with less than 50,000 members. In the early 1970s when the authorities realized that *combinates* are not really efficient, the importance of cooperatives in food production was recognized. Also, farmers were helped by the Agricultural Advisory Service having between 250-450 experts. This service was available to the members of the cooperatives free of charge.

Following the changes in the political system in 1991, the process of denationalisation began. Previously nationalised land was transferred to the Fund for Agricultural Land and Forests, and the Cooperatives Act was adopted to regulate the status and activities of cooperatives and define their role in the food processing industry. Cooperatives received shares amounting to up to 45% of the share capital in 45 food processing companies, thus making them co-owners of processing companies. Likewise, cooperatives presented claims for restitution of nationalised property. Many former members of cooperatives did not wish to renew their membership in the newly formed cooperatives since they saw no actual benefit, which is why the number of cooperatives decreased. Until the establishment of the Chamber of Agriculture and Forestry of Slovenia in 2000, the Cooperative Association was the key representative of Slovenian agriculture and cooperatives. As soon as the Chamber was established it also incorporated the Agricultural Advisory Service.

There is a view that in the period following privatisation cooperatives departed from their primary mission. The opinions about whether the cooperatives and the associations acted so owing to newly arisen political relations or whether such departure was a measure consciously undertaken by their

management boards of cooperatives vary. Some argue that cooperatives tried to act by the principles of entrepreneurship rather than according to basic cooperative principles. Since they recorded losses, they resorted to borrowing and covered the loss through disinvestment of property which they received in the privatisation process. Currently, the main activity of most cooperatives is trade – i.e. providing their members and others in the rural population with everyday goods in their own retail network. Some cooperatives also engage in the processing of agricultural products and some acting as wholesalers of the products which members of cooperatives produce (mainly milk). To a certain extent, the management boards of some cooperatives found themselves in a conflict of interests since the cooperatives were simultaneously owners of food processing companies as well as representatives of farmers' interests which provided such companies with raw material. The members' affiliation with the existing cooperatives is decreasing, which is observable in particular with relatively big and efficient farmers. The power of cooperatives and the Cooperative Association is generally estimated as rather weak. Some people even believe that new cooperatives should be established, which will take greater account of the principles of entrepreneurship (outward) and solidarity (inward).

Chamber of Agriculture and Forestry

The Chamber of Agriculture and Forestry of Slovenia is a non-governmental professional organisation established pursuant to the Chamber of Agriculture and Forestry Act. Its main tasks are to represent the interests of agriculture, to provide advice to individuals and legal entities engaged in agricultural activity, and to promote cost-effective and environment-friendly agriculture. It is the representative partner of the Government, carries public authority, and delivers comments and proposals to public documents dealing with agriculture. Membership is mandatory. The Chamber operates through 13 regional offices and 60 local units. In addition to representing the farmers, the Chamber also carries out educational, monitoring, and technical tasks. Training is provided by the Agricultural Advisory Service which is run by the Agricultural Advisory Division. The latter plans and supervises the work of the Agricultural Advisory Service; prepares, educates, and trains agricultural advisors; and participates in the planning and implementation of agricultural policy. The actual advisory work is carried out by agricultural advisory specialists and by field advisors working in eight regional Agriculture and Forestry Institutes established by the Chamber. Agricultural advisory specialists solve problems in their specific fields of work and help field advisors solve complex technical issues. However, increasing focus is put on regulations associated with EU membership. The application of direct payments (respecting cross-compliance conditions) is also guided by the advisory officers and has become an increasing work (over)load.

Other producers' associations

There are other associations of individuals in agriculture, like the associations of organic agricultural producers. These are grouped in two main organisations, namely the Union of Organic Farmers Associations – a union of eight regional associations of Slovenian organic farmers including over 1,100 farms engaged in organic farming – and the Ajda Vrzdenec Society. The latter aims at the popularisation of biodynamic farming and gardening, fruit growing, livestock breeding, bee keeping, and other activities related to nature. It includes about 400 members, mainly smaller producers and allotment gardeners. The society is a full member of Demeter International as well as a member of the Demeter Research Institute based in Darmstadt. The Union sells its products under the label *Biodar*.

Processors

Processor data

The total value of sales of products and services statistically classified as production of food and beverages in Slovenia amounts to slightly more than €2,000 million and has increased in nominal terms by one third since 2000. In the same period, however, gross added value in real terms decreased despite the growing productivity. Currently, productivity per employee is slightly above €100,000 and gross value added is somewhat above €25,000 per employee. The food processing industry in Slovenia contributes less than 2% to the total GDP, and the share of persons employed in this industry is slightly above 2%. This means that the food processing industry is the third largest employer in the processing sector, which employs a total of 250,000 persons, almost 20,000 of which work in the food processing industry. From a European perspective, food processing companies in Slovenia are relatively small and there are only a few companies with over 250 employees (less than 3%). Their total number is somewhere around 1000 and has slightly increased over recent years, mainly on account of micro enterprises, i.e. those with less than 10 employees. These account for over 70% of all food processing companies. Nevertheless, large companies employ almost 50% of all persons employed in food processing and generate about 70% of value added in this sector. The significance of individual branches within the food processing industry has remained rather stable over the years (Table 1). Almost 40% of the sales value is recorded by meat and dairy products.

Another important branch is the production of beverages, while the most outstanding under 'other products' is the group of bread and fresh pastry products. Information on food and manufacturing companies are shown in Table 2.

Processor development

Over the last fifteen years, food-processing companies have been facing serious problems, initially as a consequence of the loss of markets in the territory of the former Yugoslavia and, later on, as a result of Slovenia's accession to the EU. Before 1990, Slovenian food industry products found their markets in the territory of former Yugoslavia where they ranked as products of high quality, achieving high prices. When Slovenia became independent, those markets were no longer easily accessible for Slovenian products and the Slovenian food industry faced problems of overcapacity. However, exports to those markets recovered and in the years before EU accession represented over 60% of all exports of major agri-food commodities. After EU accession, exports were redirected towards the EU member states; at present, these countries represent over a half of all Slovenian exports. During the preparations for EU accession, rigorous EU standards had to be applied to the food industry. For this reason, most Slovenian food enterprises were modernised and now present the following advantages: fulfilment of demanding European standards, high quality certificates, traceability control systems, and introduction of systems ensuring food safety. These companies are mostly Slovenian owned.

Processor import/export orientation

Most companies are inward-oriented and primarily supply the domestic market. The turnover from export in the food industry in the last decade represents between 15 and 20% of the total turnover. This figure has however been decreasing each year. The main destinations for Slovenia's food exports are the countries of former Yugoslavia and the EU, together accounting for more than 80% of the total exports for most export products. The major export commodities are beverages, dairy products and meat. Imports are dominated by unprocessed products, primarily cereals, fruits and vegetables. The most important suppliers are the countries of the EU. Slovenia's import of major food products exceeds €1000 million, while export represents around 40% of the import, generating a trade deficit of more than €600 million.

Table 1. Production in quantities for some food products (SORS, 2011).

Products by PRODCOM	Year					
	2001	2003	2005	2007	2009	2010
Meat and meat products						
Fresh and preserved meat[1]	113,653	98,807	115,431	141,080	124,555	123,672
Meat and poultry meat products[1]	56,594	58,665	62,790	73,281	63,507	61,257
Processed and preserved fruit and vegetables[1]	18,916	18,896	17,092	15,636	20,183	16,496
Dairy products and ice cream						
Processed liquid milk and cream[1]	286,146	297,032	286,805	276,136	246,045	265,638
Cheese and curd[1]	22,366	25,043	21,907	18,510	18,126	18,880
Yoghurt, fermented or acidified milk / cream[1]	43,009	N/A	36,492	35,177	N/A	N/A
Grain mill products, starches and starch products						
Cereal and vegetables flour; mixes thereof[1]	129,677	121,141	109,593	105,519	112,933	122,974
Prepared animal feeds for farm, petfood[1]	466,584	451,081	472,157	471,491	385,495	339,946
Other food products						
Fresh bread[1]	86,688	91,721	91,020	99,423	81,666	83,466
Fresh pastry goods and cakes[1]	9,399	11,235	11,054	11,627	11,829	11,420
Rusks and biscuits; preserved pastry goods and cakes[1]	8,167	8,278	8,113	8,462	7,556	6,498
Cocoa; chocolate and sugar confectionery[1]	11,547	13,482	15,453	14,676	12,763	13,002
Macaroni, noodles, couscous and similar products[1]	14,407	14,035	12,527	N/A	N/A	N/A
Coffee, substitutes; extracts, essences…[1]	6,073	5,648	6,089	N/A	N/A	N/A
Beverages (alcoholic and non-alcoholic)						
Distilled alcoholic beverages[2]	779	N/A	665	649	N/A	N/A
Wines[3]	50,235	32,119	29,329	31,236	25,750	22,680
Mineral waters and soft drinks[3]	351,243	394,929	332,633	365,055	312,448	271,359

[1] ×1000 kg.
[2] ×1000 l alc 100%.
[3] ×1000 l.

Processor associations

Chamber of Agricultural and Food Enterprises

The Chamber of Agricultural and Food Enterprises is the association representing the interests of agri-food companies. It operates under the Chamber of Commerce and Industry of Slovenia, the largest voluntary association of Slovenian companies representing their interests in the relations with the state and the trade unions when providing the conditions for work and operation and the conditions for economic development. The Chamber of Agricultural and Food Enterprises gathers,

Table 2. Performance indicators of the food industry (SORS, 2011).

	Year				
	2001	2003	2005	2007	2009
No. of companies	823	823	805	1,006	1,111
No. of employees – food industry	23,187	22,208	21,461	18,397	16,477
No. of employes – manufacturing	251,401	247,778	239,392	240,628	197,910
% of employess (food/manufacturing)	9.22	8.96	8.96	7.65	8.33
Turnover food industry (in mio €)	1,779.5	1,993.2	1,935.4	2,116.3	1,754.0
Turnover manufacturing (in mio €)	17,261.2	18,707.4	20,904.5	25,923.1	18,550.0
% of turnover (food/manufacturing)	11.37	10.92	9.26	8.16	9.46
Productivity of food industry in €	76,746	89,751	90,182	115,035	106,452

represents and integrates agricultural and food industry enterprises in their relations with the state bodies and European branch associations.

Commercial associations

Some companies in the two most important food processing sectors in Slovenia – i.e. the dairy-processing industry and the meat-processing industry – created their own respective commercial associations. Their task is to represent these companies in their relations with the relevant segments of the public as well as to coordinate certain activities, particularly generic promotion of products. The commercial association for milk includes seven dairies, while the commercial association for meat includes over 20 meat processing companies.

Distributors

Wholesaler data

Owing to the concentration of retail channels and the concentration of the food industry, the traditional and typical role of wholesalers in Slovenia has recently diminished. It is mainly associated with the selling of materials (milk, fruit, potatos, etc.) to processors where some producers' associations act as wholesalers. Each large producer sells products directly to retail chains which then sell them to the final customers. According to the Slovenian statistical methodology, such activity is registered as wholesaling but actually does not have the 'traditional' function and meaning of wholesaling. Wholesaling to small, 'independent' retail outlets is performed by the main retail chains and is sometimes a first step towards franchising.

Retailer data

In terms of concentration in the retail trade sector, Slovenia ranks among the European countries with a high value for this indicator. This concentration has had numerous effects on the productivity and profitability of the industry as well as on the quality and level of trade services, which are comparable with the most developed economies. However, the situation in retail trade undoubtedly changed the relations with suppliers and consumers. The 2007 turnover (VAT incl.) of retail outlets selling 'mostly' food was around €4,000 million. It may be estimated that in 2005 there were around 12,000 retail outlets in Slovenia, and around one third of them were either selling only food or selling food on a non-exclusive basis (Table 3).

Table 3. Number of outlets of different sizes where food is sold (in 2005) (SORS, 2007).

Space (m^2)	Number of specialized outlets	Number of unspecialized outlets
<10	34	135
11-30	327	539
31-60	657	249
61-119	665	91
120-399	758	
400-999	252	3
1000-2,499	96	
>2,499	22	
Total	2,811	1,017

It is not clear, however, whether the 'kiosks' – small shops selling exclusively fruits and vegetables – are included in this category. Also, large retailer chains were not willing to disclose the number of outlets with the largest space available. At the same time it is not clear whether the gas stations selling food items are included in the category of 'specialised' and 'non-specialised' food shops.

Over recent years, the number of outlets has been decreasing, while the average space per food retail outlet has been getting larger. Large specialised and general Fast Moving Consumer Goods (FMCG) shops have become part of shopping malls. There were 47 'general' FMCG shops selling mostly food items, with the average space of 1,888 square metres. The annual report of the largest Slovenian retailer gives the number of different formats of shops which sell food and the total shopping space for these outlets (Table 4).

As already mentioned, the concentration of retail is very high. There are three major retail chains in Slovenia: Mercator, Tuš, and Spar. The first two are owned by domestic owners, while the latter is owned by foreign capital. The turnover of the three accounts for 65-80% of the total turnover of the food retail sector. Initially, they were not much differentiated but have recently started to develop their own specific positions on the market. In 2005, the company Hofer entered the Slovenian market as the retailer of a typical discount type. In 2007, Hofer had more than 35 outlets and had been planning to build another 20 in the next two years; at the moment it has over 50 outlets. The other discounter that entered Slovenia a year later was Lidl, which had been planning to build an outlet of around 1000 square metres in each Slovenian town with more than 5,000 inhabitants. It started with 15 outlets, today it has over 40 outlets. In addition to the two mentioned above, there are other discounters like Eurospin (over 30 outlets) and Hura (around 10 outlets).

Table 4. The number of different formats of shops which sell food and the total shopping space for these outlets of the largest Slovenian retailer (Mercator annual report, 2007).

Type of shop	Total number in Western Balkan Countries	In Slovenia only	Average shopping space (in m^2)
Hypermarket	45	18	3,244
Supermarket	180	126	718
Market	370	299	237
Self-service	120	90	123

Distributor associations

Chamber of Trade

The Chamber of Trade is a non-governmental professional organization established in 2006 pursuant to the new act of Chambers. It took over the responsibility of the Association of Trade within the Chamber of Commerce and Industry. From the start, the new Chamber has actively participated in projects regarding special and general regulations for different types of trade and performs an advisory and educational function to the members of the Chamber regarding regulations and good trade practice. Issues regarding trade with food are covered by the sector for food which has two working commissions: Commission for Food and Commission for Packaging.

Chamber of Commerce and Industry of Slovenia

Under the Chamber of Commerce and Industry of Slovenia operates the Entrepreneurial Trade Chamber. It represents the interests of small production and service companies, where production, services and trade interrelate. Within this association a section on small trade was established in 2007 by the initiative of small trade companies.

Consumers

Consumer data

In Slovenia, the number of inhabitants living in rural and urban areas is equal (total population number is around 2 million) and has not changed significantly over the last 15 years. The average age is increasing. The average annual available money assets per household member increased from €4,200 in 2000 to €6,750 in 2006 and to €7,750 in 2009. The amount of money assets spent for food increased also. On a relative basis, it represents around 20% of the total money assets in 2000, while in 2009 it was around 14%, or close to €1,100. The purchase of a series of food and beverages per household member is shown in Table 5 (SORS, 2011).

The relative amount of available money spent for selected food items is decreasing (Table 6). Most money is spent on meat. Some changes have occurred. The item which shows the largest positive change is vegetable (tomatoes, garden lettuce, sour and preserved vegetables); the item with largest negative change is bread and pastries.

Consumer associations

Some local societies are entrusted with the task of 'consumer protection', although their importance in this respect is insignificant since these are local societies with limited influence. The major organisation operating in the area of consumer protection is the Slovenian Consumers' Association, a society founded in 1990 to represent and protect the interests of its members and all consumers. The mission of the Consumers' Association as the national consumers' organisation is to represent consumers' interests in dealing with any important issue affecting the position of consumers in the wider society. The Consumers' Association participates in the formulation of laws and regulations concerning consumer protection, promotes consumers' interests with the providers of goods and services, particularly with large organisations such as banks, insurance companies, health care providers and public utilities providers. The Association features an Advisory Office and disseminates information via its website, magazine, and other specific publications. In solving consumer-related disputes, it cooperates with inspection services which, within the scope of their powers, supervise the implementation of the law on consumer protection. Likewise, it regularly cooperates with electronic and printed media.

Table 5. Average annual quantity of purchased food and beverages per household member (SORS, 2007, 2011).

Food	Year						
	1990	1995	2000	2005	2007	2008	2009
Bread and pastries (kg)	63.8	67,5	64.1	46.1	39.0	38.6	37.9
Pasta (kg)	6.5	8.0	7.4	7.5	7.3	7.0	6.7
Rice (kg)	3.4	5.0	3.8	3.0	3.0	2.9	2.5
Potatoes (kg)	28.1	32.6	24.3	23.3	15.9	15.8	14.2
Tomatoes (kg)	3.4	4.9	3.9	5.2	5.2	5.3	5.4
Garden lettuce (kg)	7.8	7.2	4.9	5.1	5.0	4.9	4.9
Other fresh vegetables (kg)	2.7	2.7	3.6	3.4	3.1	3.1	3.3
Sour and preserved vegetables (kg)	4.6	4.9	6.0	8.5	8.6	8.5	8.5
Apples (kg)	17.8	14.9	12.5	12.6	11.3	11.4	11.7
Oranges and lemons (kg)	8.6	8.3	12.7	15.2	15.2	15.5	15.8
Other southern fruits (kg)	3.8	7.2	10.4	11.5	12.0	12.3	12.6
Processed and preserved fruit (kg)	2.0	2.5	1.8	2.1	2.3	2.4	2.5
Beef (kg)	13.5	11.1	11.3	8.9	8.8	8.4	7.7
Pork (kg)	7.4	6.0	6.3	6.7	6.4	6.1	6.0
Poultry (kg)	8.5	9.2	9.6	9.1	9.2	9.7	9.4
Other fresh meat (kg)	1.3	1.1	2.3	2.0	2.1	2.1	1.9
Ham and other dried meat (kg)	1.6	1.2	1.6	2.3	2.1	1.9	1.8
Processed and preserved meat (kg)	0.8	0.5	1.8	2.4	2.8	2.8	2.7
Cheese (all kinds) (kg)	4.1	5.4	7.9	9.2	9.0	9.2	9.2
Butter (kg)	0.5	0.7	0.7	0.8	0.8	1.0	1.0
Other milk products (kg)	2.0	2.9	4.3	5.6	5.8	6.6	6.9
Coffee (kg)	2.5	3.0	3.1	3.1	3.2	3.3	3.4
Chocolate and cocoa (kg)	2.2	1.8	3.2	4.5	4.3	4.3	4.1
Biscuits, teacakes and waffles (kg)	3.3	2.6	5.3	6.4	6.5	6.6	6.4
Milk (sweet and sour) (l)	98.8	94.3	70.5	77.2	73.3	75.2	73.8
Wine (l)	12.1	9.7	7.8	6.6	5.5	5.8	5.4
Beer (l)	15.6	19.2	23.9	23.3	26.4	27.2	25.6
Eggs (no.)	107.1	104.8	98.9	83.9	78.6	80.9	80.5

Administrators (service and regulatory organisations and institutes)

Ministries and agencies play an important role in guiding, regulating and controlling the food chain. The various institutions involved are summarised in Table 7.

Education

Dividing food consumer science into three parts, as indicated in the Conceptual Framework, allows us to present the organisation of education in a similar manner.

Table 6. Percentage of total annual available money assets spent for purchased food and beverages per household member (SORS, 2002, 2007, 2011).

Type of foods	Year		
	2000	2006	2009
Bread and cereals	3.4	2.66	2.4
Meat	5.0	3.69	3.5
Milk, cheese, eggs	2.6	2.09	2.2
Oils and fat	0.7	0.44	0.5
Fruits	1.1	1.02	1.0
Vegetable	1.2	1.09	1.0
Sugar, jam, honey, chocolate and sweets	1.3	1.17	1.2
Other food products	0.7	0.57	0.5
Non-alcoholic drinks	1.9	1.37	1.3
Total of selected items	17.9%	14.1%	13.6%
Food expenditure (in €)	752	960	1,082

Food

Lower education

The Slovenian schools for agriculture, food technology and forestry educate and train students from lower vocational to secondary technical levels for the basic professions in such areas. These schools are mainly attended by students originating from farms interested in food production and processing who wish to receive sufficient qualification for a successful takeover of the farm, as well as students who enjoy working in nature and with animals and will continue their studies in biotechnology and veterinary science. In recent years, schools have directed their efforts towards providing adequate equipment for their workshops, such as confectionary, bakery and butchers' workshops, didactical kitchens, laundry, ironing and sewing workshops, stables, cold rooms, wine cellars, mechanical workshops, rooms for arts and crafts, and a machinery park. There are currently ten such schools in Slovenia.

Agriculture and food technology
The programmes of lower vocational training are the shortest of all and last two and a half years (or two years for the most successful students). Students are trained for independent performance of less demanding tasks in the work process, with adequate assistance and control; they may also participate in more demanding tasks.

The programmes of secondary vocational education may be attended by pupils who have completed elementary school or lower vocational school. The programme lasts three years spent either in the educational organisation where theory and practice are taught entirely in the school, or in a dual organisation where most part of practical training is carried out at the selected employer with whom each student concludes a study contract and obtains the status of apprentice.

Secondary professional education programmes last four years and are intended for pupils who have successfully completed elementary school or lower vocational school. Typical of these programmes is that they give the students adequate vocational qualifications as well as a good basis for further studies at higher and professional levels. The programme ends with a vocational *matura* degree.

Table 7. Overview of administrative governmental bodies in the food chain (http://www.vlada.si/en/about_the_government/).

Ministry	Mission	Executive bodies
Agriculture and the Environment	Deals with: • agriculture, rural development, food, plant protection, veterinary medicine and zootechnics, forestry, hunting and fishing, the safety and quality of feeding stuff and food or foodstuffs • tasks related to environmental protection, nature conservation, water management and climate change	• Veterinary administration • Inspectorate for Agriculture, Forestry and Food • Phytosanitary Administration
Health	Deals with matters relating to healthcare and health insurance. These include: • healthcare activities at the primary, secondary and tertiary levels • monitoring of the nation's state of health and the preparation and implementation of health improvement programmes • economic relations in healthcare and tasks relating to the founding of public healthcare institutions	• Health inspectorat
Economic development and technology	Their tasks concern: • the economic system and development • the domestic market • technical legislation and criteria • consumer protection • the protection of competition • economic relations with foreign countries • the development of the business sector and competitiveness • intellectual property • the development of small enterprises and tourism and industry projects	• Market inspectorat • Consumer protection office • Directorate for entrepreneurship and competitiveness
Education, Science, Culture and Sport	Deals with pre-school education and primary, secondary, and higher education, science, research, sport, and creativity, art, culture, cultural heritage, media, the information society, electronic communications, the Slovenian language and religious communities	• Directorat for Science and Higher Education • Directorate for Technology

Vocational and technical education programmes enable the students from three-year programmes to acquire – after two years – the same title of vocational education as the students enrolled in four-year programmes dealing with the same or similar subject.

According to the new regulations, candidates who have successfully completed an adequate secondary-technical or vocational-technical school, grammar school or secondary-vocational school, and have three years of work experience may, parallel to work, enrol in a two-year programme of higher professional education in agriculture or food technology.

Veterinary science
As regards veterinary science, the only educational programme at secondary level is the programme for veterinary technicians.

Higher education

Higher education programmes in the above fields are provided by the Biotechnical Faculty and the Veterinary Faculty of the University of Ljubljana, as well as by the Faculty of Agriculture and Life Sciences of the University of Maribor. The University of Ljubljana offers graduate and postgraduate (up to PhD) study programmes in agronomy, livestock breeding, food technology and nutrition, biotechnology and microbiology, and veterinary science. Similar programmes are offered by the University of Maribor. In addition to the university studies, higher education programmes are also available.

Consumer – mind/culture
There is no educational programme specialised in consumers – mind/culture in Slovenia. To a certain extent, such topic is covered by the programmes of three faculties in the University of Ljubljana, namely the Faculty of Economics, the Faculty of Social Sciences, and the Faculty of Arts, as well as in two faculties in the University of Maribor: the Faculty of Arts and the Faculty of Economics and Business.

Consumer – life
What applies to consumer – mind/culture also applies to consumer – life. Some, yet scarce, information on this subject is provided by the programmes of the two Faculties of Medicine (Ljubljana and Maribor). At the level of higher education programmes, the Izola College of Health Care offers a study programme on Dietetics. The Maribor Faculty of Agriculture and Life Sciences offers a study programme of Food Safety in Agrifood Chain, while the Ljubljana Biotechnical Faculty offers a second-degree Bologna programme on Nutrition. A detailed overview of the said programmes however suggests that they only give limited consideration to the subjects dealt with herein. At a lower level, limited information on the subject is provided in the programmes for health care workers and workers in the area of food technology.

Research

Public (food, consumer – life, consumer – mind/culture)

In research, the situation is quite similar to that in education. Most research was in fact directed towards food with much less directed into Consumer – life and Consumer – mind/culture. Research is mainly carried out in individual departments of the above faculties and universities, as teaching and research in Slovenia is covered by the same ministry. Public finance intended for research is distributed via the Slovenian Research Agency under the Ministry of Higher Education, Science and Technology. In addition to the activities carried out by the above institutions, research on food is also undertaken by the Agricultural Institute and the Institute for Hop Research and Brewing, while certain aspects of consumer-mind/culture are covered by the Scientific-Research Institute of the Slovenian Academy of Science and Arts.

Private (food, consumer – life, consumer – mind/culture)

Slovenia has no major private research organisations dealing with food or consumer – life. There are minor institutions offering consultation in relation to food to producers and processors as well as retail stores. The same applies to consumer – life, where minor institutions advise people on proper nutrition. In terms of consumer – mind/culture, there are some organisations carrying out research and studies of the various aspects of consumer behaviour for the needs of their clients. The

largest among these are: Valicon (turnover €2.6 million), GfK (turnover €2.3 million), ACNielson (turnover €1.6 million), Aragon (turnover €1.4 million), Mediana (turnover €1.4 million). These institutions carry out both qualitative and quantitative research, as well as panel, continuous and '*ad hoc'* research. Most of these organisations have their own call centres and also conduct internet research. They are members of ESOMAR.

Media

The total gross media expenditure (value calculated according official price lists) in Slovenia in 2011 was around €630 million, while the net value (money actually paid to media by advertisers) represents around 30% of gross value. Among the top 20 advertisers there are three retailers operating on Slovene market having the 1st, 5th and 12th positions with a total value of around €60 million. As far as food products are concerned, the dairy industry invested the highest amount of money in media (€17 million) (Petrov, 2012).

There is no magazine in Slovenia specialised in FMCG issues nor one that deals exclusively with food and/or food consumption. The magazine that covers the general issues of consumers and consumption with the emphasis on consumer protection is VIP, the official magazine of the Consumer Protection Association of Slovenia. Every week, the national (public) television (RTV Slovenia) broadcasts a 15-minute programme entitled *Posebna ponudba* (Special Offer) which deals with general consumer concerns. The emphasis is on consumer rights protection. The broadcasting time is outside prime time; data about reach and ratings are not freely available. Issues concerning food consumption are included in different sections of magazines and newspapers which target different segments of the public. Mainly, they cover topics related to cooking, food and health in association with recipes, slimness and fitness. There are also similar programmes on national and private TV, but the focus is primarily on food preparation skills. Some food-related topics – mainly production and processing of agricultural products – are covered by two programmes intended for farmers: the national TV broadcasts *Ljudje in zemlja* (People and Land) on Sundays at noon, and the national radio broadcasts *Kmetijski nasveti* (Agricultural Advice) every working day at noon.

Analyses of stakeholders

Relationships amongst producers, processors and retailers

The relationship between producers and processors was mostly one-way as the producers did not pay much attention to the needs of the processors. Until the 1990s, politics favoured a quantitative increase of production. Any sub-system, including advisory services, acted in the same direction. In the 1990s, a document on the strategy of agriculture was adopted, setting objectives that were more than just production-related. Upon EU accession, the idea prevailed that the solution for Slovenian agriculture was not in further increases in production although most producers were reluctant to change their way of thinking. Now that Slovenia is a member of the EU, all regulations concerning safety and transparency of production of agricultural products are strictly observed. Quite often, particularly during the period of accession, the control over the implementation of the regulations was even stricter than in the old member states. While this brought additional costs and caused dissatisfaction to producers it helped them to achieve high levels of safety in food production, particularly in the production in the most important products – meat and milk – which are extremely specialised. On the other hand, there are more and more proposals, particularly by smaller and less specialised producers, to introduce supplementary activities on farms, such as small-size processing (small food businesses), catering, and tourism. However, the expectations within agriculture by both politicians and farmers for the success of such activities are in our opinion too optimistic.

The same comment, at least to a certain extent, applies to the food industry. Here, too, the main focus was on production supported by a philosophy of protection of domestic production prior to EU accession (tariff and non-tariff protection). Another problem in regulating the relationships between producers and processors was the dual role of cooperatives which were, at the same time, owners of processing companies and suppliers of raw material. They expected both high purchase prices and company profits, which brought real conflicts of interests particularly after EU accession when processing companies, as a result of competition from foreign companies, tried to lower operation costs mainly through lower prices for the raw material.

Considering the protection provided to the domestic market, research and development (R&D) together with marketing activities in the processing industry were not practised to a broad extent. Studying the behaviour of food consumers was an activity rarely pursued. Most of the processing industry overlooked the fact that a rapid concentration of trade took place over a couple of years and that the negotiating power between processors and retailers became inverted. Thanks to the free movement of goods, possible after EU accession, retail companies were able to purchase products in all member states and in the opinion of producers set impossible conditions for the domestic processing industry. Trade was much faster than the processing industry in realising that it would only be successful if it understood the consumer. Ownership relations in trading were much more simple and transparent than in the processing industry, which facilitated much more effective operations. Greater concentration added to greater competitiveness among traders and resulted mostly in price-reduction strategies, thereby intensifying the pressures on the processors. There was no distinction among retail chains as to which segment of buyers they would target and some differentiation has only been recorded in recent years.

Relationships between retailer and

In terms of equipment and opportunity of selection, Slovenia changed very rapidly. Before 1990 stores had little stock and equipment and even a lack of certain food products, today stores are fully comparable with those in Western Europe. This fact, together with the increase in the population's purchasing power, led to a real shopping euphoria. Some people believe that this, at least in the middle generation, could be attributed to the effect of 'compensation': people who just until recently had limited choice were suddenly given a variety of options. Since the only goal of store owners is profit (concentrated and clearly ownership structure), given the great concentration and non-differentiation, as well as – some people believe – the proverbial 'thriftiness' of Slovenians, retail stores gained loyalty mostly with price reductions. The promotion of most retail store chains is based on low prices. Low prices were further promoted by the recent entry of foreign discount chains. The factors influencing consumers to buy products are rather complex and illustrated through some case studies for cheeses and sausages in Slovenia by Klopčič *et al.* (2012).

Relationships between associations and their members

The main goal of associate of individual entities into groups of interest is to enlarge their influence and power. We identified associations of producers, associations of processors, associations of traders and associations of consumers. The relationship between these groups and the 'power-game' between them reflects relationships between individual entities. We already mentioned that there were discussions between producers and processors about the issues related to profits of companies and prices of raw materials. In recent years there have been discussions between the associations about the 'fair' share of the revenue which should go to each of the partners in the chain producer-processor-retailer.

In our opinion, the negotiation power of all these associations is rather weak since issues of production, processing and retailing are rather well regulated thanks to the EU-membership. Nevertheless, the voice

of these associations is listened to by Administrators. Unfortunately, in most of the stakeholder groups there is more than one association which would like to be the sole representative of these stakeholders. This means that the interests of individual entities within the stakeholder group are not unified.

Administrators

Administration in Slovenia is organized in compliance with the EU system. Sometimes it looks very complicated, politicized and even non-transparent. There are different governmental bodies which are responsible for setting priorities, initiatives and regulations for particular aspects related to food consumer science. Often, there is lack of cooperation and overlapping of responsibilities of different governmental bodies. The (soft) methods introduced by administrators of some old as well as new member states to protect domestic agro-food industries which can sometimes be observed (specially after the financial crises) was strictly avoided by the Slovene administrators.

Educators

Slovenia has a wide network of educational institutions where different aspects of knowledge in the field of food consumer science can be acquired. This is true for lower education, vocational education and higher education. Still the majority of knowledge which can be acquired is focused on production of food and less on consumer related issues. In recent years the number of programs offering education in this field has increased. There is a danger of 'inflation' of knowledge offering by such programs. Also financing so many programs by public funds will be a problem. On the contrary, programs which deal with the consumers' mind/culture are less frequent, especially at lower level. There is no educational program in Slovenia which provides complex knowledge on food consumer science with the aim of educating the future educators.

Researchers

National priorities for research related to food consumer science are set by different Ministries. Generally they are not high on the list of research priorities and are inadequately coordinated. Research efforts in this area are often scattered between different research institutions, and sometimes even overlap. Still the majority of public funds are used for researching the 'hard' part of food consumer science. The cooperation between industry and public research institutions is not very extensive. Funding of research directly by producers and processors is not frequent, the processors due to their small size have limited budgets available for R&D. Research focused on the consumer mind/culture is mainly financed by some large processors and retailers, but is on the applied level of serving the 'daily' needs of companies to better adapt their activities to the wishes of their consumers. Nutritional research (studying consumer-life) which is very complicated and costly due to clinically oriented experiments is rare.

Investors

Education and research is mainly funded by public money with some exceptions. Funding of the extension service which educates farmers is partly by public money and partly by obligatory membership of farmers to the Chamber of Agriculture and Forestry. Some activities by Associations of processors and traders, mainly in the field of promotion, are also funded by membership.

Facilitators

The largest body of facilitators is the Extension Service of the Chamber of Agriculture and Forestry. The extension officers are usually educated to a degree in agricultural science. The same type of education applies to the majority of teachers who teach at agriculture schools at lower and secondary

level, some of them being also educated in food technology and veterinary science. With the group of facilitators we could also include those who teach marketing (including consumer behaviour) and sales techniques at lower and secondary vocational schools; they are usually graduates from faculties of economics or social sciences. Another group are teachers who teach 'home economics' at primary schools level. They are educated at the Pedagogical Academy. The last group would be general practitioner doctors, who often advise their patients on proper eating behaviour which could prevent diseases. They also teach pupils at secondary level of medical (nursing) schools. The facilitators of 'knowledge' about food consumer science are also processors and retailers who promote the products they produce or sell through different methods, mainly by use of mass media.

Media

Within the food chain the most intensive relationship is established between retailers and consumers. Media spending forms an indicator for the influence of producers, processors and retailers each on the consumer-mind/culture. The information relevant to consumer-life is covered by some *ad hoc* articles in newspapers and magazines, which many times are not of proper quality. The influence and relevance of information through the new media, many times on peer-to-peer basis, on consumer-mind/culture and consumer-life is hard to estimate, but someone can speculate that it will bring a new and more democratic distribution of power between the deliverers of food, consumers and other stakeholders.

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Consumer perceptions of home made, organic, EU certified, and traditional local products in Slovenia

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Abstract

This study provides information on the position of regular, organic, PDO/PGI (Protected Designated Origin/Protected Geographical Indication), mountain and farm made cheeses and sausages in the minds of Slovene consumers, and identifies opportunities to improve the positioning of these products. We present the results of a questionnaire sent to 2,300 Slovene consumers, of which 360 were returned, and 315 did not have any missing values and were used for statistical analysis. The sample provides a reasonable representation of the Slovene population. Respondents answered questions on the relevance of 16 food characteristics, such as nutrition, healthiness, price, animal friendly production, specific region production, taste, and ease of preparation. Respondents gave scores between 1 (not important) and 7 (very important). Also consumers' perceptions of regular, organic, traditional and farm-made products on these food characteristics were measured. Principal Component Analysis (PCA) identified the following main components: healthiness, good price, sustainable production, traditional production, indulgence and convenience (shopping and preparing). The results show the components which determine Slovene consumers' intentions to buy different types of cheeses and sausages. It appears that a high score on the relevance of a food characteristic is not necessarily reflected in the buying decision. Implications of the results for the marketing of cheeses and sausages are discussed.

Keywords: consumers' behaviour, organic, traditional, and farm-made food, opportunities

Introduction

Removing trade barriers between countries increases competition in national markets because foreign competitors can offer their produce more easily in domestic markets. For example, European companies can more easily enter national markets of countries that have joined the European Union (EU) than those that have not. Thus, national and local producers of countries joining the EU have to develop marketing plans to defend against foreign competitors. This paper presents cases from Slovenia, which joined the EU in May 2004, and the Euro zone in January 2007. The paper focuses on marketing challenges faced by farm-based cheese and sausage processors.

The case offers valuable insights for small business owners that face similar market environments with increasing foreign competition. Moreover, it offers suggestions for policy makers that want to increase the competitiveness of domestic producers. Finally, the case can be used in marketing courses to demonstrate the application of market research for marketing planning.

The market research presented in this paper shows opportunities for Slovene farm-based processors of cheese and sausages to improve their market position: improve the taste, availability and awareness of their products. Moreover, it demonstrates that marketers should not use only consumers' stated attribute importance to identify market segments.

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First, a marketing perspective on competition is described. Second, the situation of cheese and sausage processors in Slovenia is presented. Third, the methodology of the market research is discussed. It focuses on the marketing of cheese and sausages in Slovenia, but the method can easily be adapted to other products and countries. Fourth, the results of the market research are detailed. Fifth, implications for marketing planning of Slovene cheese and sausage processors are discussed. Finally, some issues are suggested that can be discussed based on the presented case.

Marketing perspective on competition

Market orientation as a dynamic capability

Research has shown that market orientation improves economic performance (Kirca *et al.*, 2005). The basis for a market orientation is the philosophy or business culture that the key to organizational performance is to satisfy your customers more than your competitors do (Homburg and Pflesser, 2000; Narver and Slater, 1990). However, a philosophy alone does not improve performance; it needs to be implemented. Firms need to understand customers and competitors to be able to satisfy customers better than competitors. Thus, they need to generate information about their customers and competitors and learn from this information by discussing it with other people within their organizations (Kohli and Jaworski, 1990). Finally, firms need to respond to this new knowledge (Kohli and Jaworski, 1990).

The implementation of a market orientation is supported by other organizational resources, such as a learning orientation, an entrepreneurial orientation, and innovativeness (Hult and Ketchen, 2001). These organizational cultures and procedures that allow a firm to adapt to changing market conditions are referred to as dynamic capabilities (Menguc and Auh, 2006).

Market positioning

A firm's resources allows it to obtain a market positioning (Day and Wensley, 1988). A market position is defined by the way customers perceive the offer of a firm relative to offers of competitors that fulfil the same need. A superior market position means that customers believe that the firm's offer fulfils their needs better than competitive offers do. If the firm's market position is superior the firm can perform better than its competitors (Hult and Ketchen, 2001). To obtain a superior market position, firms need to realize that not all consumers are the same. Different customers may value different aspects of the offer and, therefore, an offer may be superior for one customer, but not for another. Market positioning, therefore, is preceded by market segmentation and market targeting.

Target marketing is performed in three steps: market segmentation, market targeting and positioning (Kotler and Keller, 2009). Market segmentation holds that firms identify groups of customers where differences within the groups are small compared to differences between the groups. Market targeting holds that firms evaluate the attractiveness of serving each segment and choose the ones they wish to serve. Positioning holds that firms try to obtain a position in the minds of their customers. Positioning is about perceptions of customers. A firm's positioning shows how the firm's offers are perceived by customers in relation to offers of competitors. This can be described with points-of-difference and points-of-parity. Points-of-difference are attributes or benefits consumers strongly associate with an offer, evaluate positively, and believe they could not find to the same extent with a competitive offer. Points-of-parity indicate associations that are not necessarily unique to the offer but may be shared with other offers (Kotler and Keller, 2009).

Numerous variables can be used for market segmentation, but the most valuable variables have clear implications for adapting the offer to customers' needs. Variables for market segmentation should, therefore, be related to consumer behaviour models, such as the multi attribute model. The

multi attribute model holds that consumers' overall evaluation of an offer is based on the importance they attach to benefits and attributes of the offer and their perceptions of offers on these benefits and attributes. It assumes a compensatory decision rule, which means that favourable perceptions about the attributes of an offer can compensate for unfavourable perceptions of another attribute. In other words, perceptions of attributes and benefits of an offer drive the consumer's intention to buy an offer and the weight of each attribute depends on the importance of that attribute. Attribute importance, however, consists of three dimensions: salience, relevance and determinance (Van Ittersum *et al.*, 2007).

Salient characteristics for food

Salience reflects the degree to which characteristics of food come to mind (Van Ittersum *et al.*, 2007). Salience of an attribute is measured by an open ended question to let people indicate which attributes they believe are important. Salience has marketing implications when attribute information is available only in memory during the decision process.

Relevance of food characteristics

Relevance reflects the importance of attributes for individuals and is largely determined by values and desires (Van Ittersum *et al.*, 2007). Attributes and benefits that satisfy important values and desires are more relevant. Relevance of an attribute is measured by directly asking people to judge the importance of attributes. For example via the direct rating method that asks individuals to rate an attribute on a rating scale (e.g. 1 = 'unimportant' to 7 = 'important'). Measuring relevance has implications for marketing planning because relevance is positively related to determinance. Moreover, relevance is important when consumers decide whether or not to buy at all. Finally, relevant attributes identify opportunities for attribute levels that are outside the range of existing attribute levels.

Perception of food characteristics

Perception reflects how food attribute levels of a certain product, like a cheese or a sausage, are viewed by customers. Perceptions of attribute levels are not the same as actual attribute levels, because perceptions are subjective. For example, an objective price of 1 Euro for a sausage may be perceived as expensive by one consumer and cheap by another. Perceptions of attribute levels have a more direct influence on consumers' liking of a product than objective attribute levels (Steenkamp, 1990).

Determinance of food characteristics

Determinance reflects the importance of attributes in judgement and choice and is generally calculated based on the differences in attribute levels in a choice set (Van Ittersum *et al.*, 2007). Determinance of an attribute is measured by regressing attribute levels of an object on an overall liking of the object. The regression coefficient obtained for an attribute measures the determinance of the attribute. Determinance has clear implications for marketing planning because it is closely related to behavioural outcomes (e.g. purchases). Determinance is important when consumers decide which one of two products to buy and, thus, for a product's competitive position in the market.

Superior performance

Superior performance means that a firm achieves its objectives better than its competitors. A firm's objectives can be profit, market share, employment or simply survival. A superior market position is a prerequisite for, but does not guarantee, superior performance. Firms incur costs to create offers that are valued by customers. Firms need to appropriate part of this value from customers via higher prices or higher sales. Pricing strategies and policies based on consumers' willingness to pay and

the value of competitive offers are, therefore, crucial to turn a superior market position into superior performance for the firm.

The case: farm-made cheese and sausages in Slovenia

Slovenia has established a liberal political culture since it became independent in June 1991. It adapted successfully to the world market: it joined the EU in May 2004, and the Euro zone in January 2007, and its economy has grown by more than the EU average, from 2004 until the start of the financial crisis in 2008. Agriculture in Slovenia however, is facing problems to compete on the EU market. A quarter of Slovene land is defined as less favoured areas and, thus, most farms include hilly and mountainous areas that limit the possibilities for farming. Moreover, the size of farms is small, for example 84.4% of the farms are less than 8 ha, which limits their production and raises costs, compared to farms in other EU countries. Similarly, most processors of agricultural produce, such as dairies, are smaller than their competitors in the EU. Consequently, production costs for most agricultural produce are higher in Slovenia than in other areas of the EU, which makes it difficult to compete on foreign EU markets with commodities such as cheese and meat. Finally, food retailing in Slovenia is highly concentrated. These large retailers look across the border for competitive offers. Moreover, some foreign retailers are penetrating the Slovene market bringing their own suppliers from abroad (Pohar and Klopčič, 2012). Thus, in an open economy farmers and processors of agricultural produce have to define marketing strategies to defend their domestic market (Esselink, 2009).

The goal of the market study presented hereafter is to identify marketing strategies for farm-made cheese and sausages in Slovenia to defend their domestic market against foreign competition. Positional defence is chosen as the competitive strategy. It means that Slovene producers offer exactly what domestic customers want and thus leave no room for foreign competitors to enter the Slovene market in a profitable way. This study analyzes consumer preferences and perceptions of products to identify marketing strategies that can help Slovene producers and processors to protect their local market against foreign competition.

Methodology

This study measures the relevance and determinance of food characteristics according to Slovene customers.

- To indicate relevance of food characteristics, it reports average relevance scores across all respondents for each food characteristic. These scores are reported from the most relevant characteristic to the least relevant characteristic, which helps firms to differentiate their offer on characteristics that are relevant to consumers.
- This study also measures customers' perceptions of several offers within the same product category (i.e. cheese and sausages). Points-of-difference and points-of-parity will be identified for each offer.
- To measure determinance of food characteristics it reports regression coefficients of food characteristics that drive customers' intentions to buy food products.
- Market segments are identified based on the relevance of food characteristics. Superior market positions can be obtained by targeting specific market segments that value some characteristics more than other market segments.

A random sample from the Slovene population (above the age of 18 years) was obtained from statistics Slovene. This allows a generalization of the results to the Slovene population. Questionnaires were sent to 2,300 consumers and 340 questionnaires were returned. To limit the length of the questionnaire respondents rated either cheeses or sausages: 220 respondents rated 4 or 5 cheeses and 120 respondents rated 4 sausages. Eventually, 315 questionnaires without missing values were used for the analyses.

Perceptions of food characteristics are measured for several cheeses and sausages available in Slovenia: regular cheese and sausages, organic cheese and sausages, PDO cheese (Product from a Protected Designated of Origin, such as Nanos cheese) and PGI sausages (Protected Geographical Indication, such as Kranjska sausage), mountain cheese, and farm-made cheese and sausages.

The first part of the questionnaire asked respondents some background variables: age, education, stage in their professional career, and region where they live. Results presented in Table 1 do not indicate a serious bias in the profile of the respondents compared with the Slovene population. However, more women than men returned the questionnaire, but this is appropriate because more women than men do the food shopping. Moreover, older people responded slightly more. The results allow a generalization of our findings to the Slovene population.

Salient food characteristics

We identified 6 salient characteristics of food: healthiness, price, sustainability, tradition, indulgence and convenience. Health characteristics of food are related to the absence of negative influences, such as saturated fats, salt, and too many calories. Moreover, healthiness is related to positive influences of food, such as stimulating the immune system. Price is about low or at least competitive

Table 1. Comparison between respondents and the Slovene population.

	Respondents	Population
Age (above 18) (years)	49.0	40.8
Sex: men / women (%)	37.8/62.2	49/51
Education (%)		
Primary school	10.5	24.1
Vocational school	19.8	27.8
Secondary school	36.1	31.0
High school	17.0	6.6
University	14.2	9.2
Master/ PhD	2.5	1.3
Profession (%)		
School/student	9.0	14.1
(Self) employed (or looking for a job)	48.5	37.0
Farmers	1.2	
House wife	4.9	
Retired	31.5	26.0
Region (%)		
Pomurska	4.9	5.8
Zasavska	5.6	2.2
Gorenjska	9.9	9.9
Podravska	17.6	15.8
Spodnje-posavska	1.9	3.4
Notranjsko-kraška	3.4	2.6
Koroška	5.6	3.6
JV Slovenija	7.1	6.9
Goriška	1.5	5.8
Savinjska	6.5	12.7
Osrednjeslovenska	31.2	25.9
Obalno-kraška	4.9	5.4

prices. Sustainability is about doing business without harming the interests of society and future generations. It includes societal issues such as the environment, animal welfare and fair trade. Tradition is about conserving what is good. Some people value the past and want to maintain what is threatened by innovation and globalization, such as local or national products and traditional production methods. Indulgence is about enjoying life and for food it means excellent taste and enjoyable meals. Convenience is about saving time and effort. For food it means that it should be convenient to buy and easy to prepare.

Perception of food characteristics

Respondents were questioned on their perceptions of cheeses and sausages. For example, to measure consumers' perception of the healthiness of cheese, 4 questions related to health aspects were posed as follows:

- Do you think that the (e.g. farm made) cheeses are nutritious?
- Do you think that the (e.g. farm made) cheeses improve your health?
- Do you think that the (e.g. farm made) cheeses are healthy products?
- Do you think that the (e.g. farm made) cheeses have certificates that guarantee the safety of the product?

These questions are answered on a seven point scale that is anchored by absolutely not and absolutely yes. Principal Component Analysis (PCA) was used to assess whether consumers actually perceived the cheese products to be along the lines of the 6 salient food characteristics that we identified. The PCA was performed on 1,415 product evaluations because 220 respondents rated 4 or 5 cheeses and 120 respondents rated 4 sausages. Evaluations with missing values were excluded from the analyses. Table 2 shows the factor loading of the items after rotation (varimax). The dimensions are clearly

Table 2. Factor loadings of perceived attributes of cheeses and sausages.

Perceived attributes of cheese	Healthy	Sustainable production	Traditional production	Good price	Convenient	Indulgence
Nutritious	0.72*	0.20	-0.08	0.07	0.13	0.30
Improves health	0.82*	0.13	0.24	0.15	0.01	0.13
Healthy	0.80*	0.20	0.33	0.08	0.05	0.16
Certificates as safety guarantees	0.49*	0.23	0.41	-0.03	0.33	0.00
Low price	0.08	0.03	0.04	0.90*	0.13	-0.02
Competitive price	0.10	0.08	0.15	0.83*	0.17	0.18
Good value for money	0.12	0.13	0.47	0.36	0.07	0.56*
Fair price for producers	0.03	0.18	0.63*	0.31	0.12	0.25
Environmental friendly production	0.45	0.38	0.67*	0.00	0.02	0.13
Animal friendly production	0.44	0.34	0.68*	0.03	0.03	0.07
Produced in Slovenia	0.13	0.81*	0.17	0.07	0.13	0.20
Traditionally produced	0.23	0.82*	0.22	0.06	0.03	0.18
Produced in a specific region	0.20	0.82*	0.20	0.04	0.08	0.16
Enjoyable meal	0.31	0.35	0.16	0.06	0.22	0.70*
Excellent taste	0.31	0.36	0.13	0.04	0.28	0.69*
Convenient to buy	0.02	0.05	0.07	0.25	0.88*	0.05
Easy to prepare	0.15	0.12	0.06	0.08	0.81*	0.29

* *The highest loading of each attribute on the components.*

recognizable in the results of the PCA with 6 components. The highest loading of each item on the components are marked with an *. Groups of items load highest on the expected component, with one exception, 'Good value for money'. It turned out that the translation of this item in Slovene was very difficult, which resulted in a long description. Factor loadings suggest that consumers interpreted this item in different ways and, therefore, the item was not used for further analyses.

Additional PCAs and a reliability analyses (Cronbach Alpha) were performed only on the items that load highest on one component in Table 2. Table 3 shows the results of these analyses. The measures for each perceptual dimension have good measurement scale properties: all the Eigenvalues of the second component in a PCA are below 1; the variance accounted for by the first component is higher than 60%; and all items load higher than 0.60 on the first component (even higher than 0.67). All Cronbach Alpha's are higher than 0.60 (even higher than 0.78). For subsequent analyses, average scores of the items that load high on the respective component are used as measures for the perceptual dimensions.

Relevance of food characteristics

To measure the relevance of food characteristics respondents were questioned on the importance of each item when they buy food. For example, to measure the relevance of healthiness when consumers buy food, 4 items related to health aspects were examined:

- When buying food products how important is the nutritional value for you?
- When buying food products how important is it for you to improve your health?
- When buying food products how important is healthy food for you?
- When buying food products how important is food security, guaranteed by certificates?

These questions are answered on a seven point scale that is anchored by not important and very important. Healthiness, low price, sustainability, tradition, indulgence and convenience are expected as underlying dimensions for relevance, because the questions about relevance mirror the perceptions of food characteristics. PCA was used to identify the underlying dimensions of the relevance measures. The PCA was performed on 315 respondents. Respondents with missing values were excluded from the analyses. Table 4 shows the factor loading of the items. The highest loading of each item on the components are marked with an *. The dimensions are clearly visible in the results of the PCA with 6 components. Groups of items load highest on the expected component, again with one exception, good value for money, which loads higher on the sustainability component than on the expected good price component. This confirms our decision to exclude this item from further analyses.

Further analyses show that the measures for each relevance dimension have good measurement scale properties (see Table 5). All the Eigen values of the second component in a PCA are below 1, the

Table 3. Measurement scale properties of perceived attributes of cheeses and sausages.

Scale	No. of items	Eigenvalue second component	% Variance accounted for	Lowest item loading	Cronbach's Alpha
Healthiness	4	0.65	65	0.71	0.82
Low price	2	0.35	82	0.91	0.79
Sustainable	3	0.70	71	0.67	0.79
Traditional	3	0.36	79	0.87	0.87
Indulgence	2	0.23	88	0.94	0.87
Convenience	2	0.36	82	0.91	0.78

Table 4. Factor loadings of relevance attached to food attributes.

Perceived attributes of cheese	Healthy	Sustainable production	Traditional production	Good price	Convenient	Indulgence
Nutritious	0.80*	0.16	0.04	0.00	-0.01	0.17
Improves health	0.82*	0.15	0.19	0.08	0.08	0.08
Healthiness	0.80*	0.12	0.28	0.04	0.17	0.06
Certificates as safety guarantees	0.56*	0.39	0.25	0.08	0.09	-0.06
Low price	0.07	-0.03	0.07	0.76*	0.00	0.27
Competitive price	0.01	0.10	0.09	0.84*	0.03	0.05
Good value for money	0.16	0.58*	-0.15	0.48*	0.19	-0.01
Fair price for producers	0.07	0.71*	0.19	0.28	0.09	0.06
Environmental friendly production	0.33	0.69*	0.35	-0.14	0.06	0.12
Animal friendly production	0.30	0.72*	0.24	-0.16	0.03	0.17
Produced in Slovenia	0.22	0.16	0.70*	-0.15	0.10	0.17
Traditionally produced	0.19	0.16	0.84*	0.10	0.07	-0.02
Produced in a specific region	0.15	0.16	0.68*	0.21	0.13	0.01
Enjoyable meal	0.11	0.06	0.12	0.11	0.87*	0.05
Excellent taste	0.08	0.11	0.12	-0.04	0.85*	0.12
Convenient to buy	0.05	0.17	0.06	0.14	0.22	0.80*
Easy to prepare	0.16	0.03	0.04	0.16	-0.01	0.86*

* *The highest loading of each attribute on the components* .

Table 5. Measurement scale properties of relevance attached to food attributes.

Scale	No. of items	Eigen value second component	% Variance accounted for	Lowest item loading	Cronbach's Alpha
Healthiness	4	0.61	66	0.73	0.81
Price	2	0.48	76	0.87	0.69
Sustainable	3	0.68	69	0.69	0.77
Traditional	3	0.66	65	0.76	0.72
Indulgence	2	0.42	79	0.89	0.72
Convenience	2	0.46	77	0.88	0.70

variance accounted for by the first component is higher than 60%, all items load higher that 0.60 on the first component, and all Cronbach Alpha's are higher than 0.60.

Determinance of food characteristics

After each series of questions about customers' perceptions of a cheese or a sausage the Juster scale is used to measure respondents' behavioural intentions to buy the product (Day *et al.*, 1991; East, 1997). The Juster scale is an 11 point scale (from 0 to 10) with verbal description and percentages that respondents can use to indicate their likelihood of buying a specific product within a specified period of time. In our study the time period is within one month.

To measure the intention to buy a certain food product the next question was used:

> 'When buying cheese, how likely is it, that you will buy farm made cheese (or organic cheese or mountain cheese or …..) in the next one month?

The same question was asked for sausages.

Regression analyses are preformed on perceptions of cheese on behavioural intentions to buy cheese. This procedure produces estimates of the determinance of perceptual dimensions of food characteristics. These estimates of determinance can be compared to estimates of relevance. In other words, it is a check to see whether relevance of food characteristics influences determinance of food characteristics. Regression analyses are performed across all respondents and for each product.

Market segmentation

It is possible to identify segments of consumers that attach similar importance (relevance and determinance) to food attributes. However, these analyses are still in progress and not reported in this article.

Results

Relevance of food characteristics

Table 6 shows the food attributes by decreasing relevance. It shows that taste and health are the most relevant attributes, followed by production in Slovenia. The indulgence attribute enjoyment is the next most relevant food characteristic for Slovene consumers. Sustainability issues, such as environmental and animal friendly production, and a fair price for producers score above average for relevance in this list of food characteristics. Low prices and competitive prices are least relevant for Slovene consumers. Tradition seems less relevant because production in a specific region and traditionally produced are rated as not relevant, but production in Slovenia is very relevant. Convenience elements score below average on relevance in this list of food characteristics.

Table 6. Relevance of food attributes.

Perceived attributes of food	Average relevance across the sample
Excellent taste	6.36
Healthiness	6.04
Produced in Slovenia	5.97
Enjoyment	5.93
Environmental friendly production	5.92
Improving health	5.88
Animal friendly production of food products	5.85
Fair price for producers	5.69
Convenient shopping	5.47
Certificates as safety guarantees	5.38
Traditionally produced	5.36
Easy to prepare	5.22
Nutritional value	4.95
Competitive price	4.61
Produced in a specific region	4.40
Low price	4.30
n	325

Market positioning of cheeses

Table 7 shows how consumers evaluate the various cheeses. Advantageous scores for a product are indicated with [b] and disadvantageous scores for a product with [a]. Different letters ([a] or [b]) indicate statistical differences. A single score signed with the letter [b] on a characteristic for an offer, therefore, signals a point-of-difference for that product. Points-of-parity are indicated by similar letters on a characteristic across offers.

As you can see in Table 7, the positional advantages (i.e. points-of-difference) for regular cheese over competitors are its low and competitive price, and its convenience. Moreover, everybody is assumed to know regular cheese. However, it has disadvantages on all other perceived food characteristics: healthiness, sustainability, tradition and taste.

The positional advantage of organic cheese is its perceived healthiness, which is guaranteed by certificates. However, this is a point-of-parity because this positional advantage is shared with mountain cheese and PDO cheese. Organic cheese has disadvantages in price.

The positional advantages for PDO cheese are, obviously, its region of origin and its traditional production. Moreover, to some extent PDO is considered as a certificate that guarantees its safety. None

Table 7. Consumers' perception of categories of cheeses.

Perceived attributes of cheeses	Regular	Organic	PDO	Mountain	Farm made
Health	4.39[a]	5.53[b]	5.33[b]	5.37[b]	5.06
Nutritious	4.96[a]	5.61	5.62	5.85	5.76
Improves health	3.99[a]	5.25	4.86	5.16	4.88
Healthiness	4.37[a]	5.70[b]	5.36	5.63[b]	5.17
Certificates as safety guarantees	4.27[a]	5.60[b]	5.50[b]	4.88	4.47[a]
Good price	4.46[b]	3.20[a]	3.48[a]	3.71	4.06[b]
Low price	4.24[b]	2.88[a]	3.18	3.49	3.90[b]
Competitive price	4.69[b]	3.53[a]	3.77[a]	3.94	4.21
Sustainable production	3.98[a]	4.88	4.76	5.23[b]	4.87
Fair price for producers	3.83[a]	4.10	4.32	4.44	4.34
Environmental friendly production	4.03[a]	5.30	5.01	5.63[b]	5.14
Animal friendly production	4.12[a]	5.27	4.95	5.63[b]	5.15
Traditional production	4.09[a]	4.97	5.84[b]	5.85[b]	5.53[b]
Produced in Slovenia	4.57[a]	5.00	6.05[b]	5.91[b]	5.89[b]
Traditionally produced	3.80[a]	4.94	5.51[b]	5.85[b]	5.61[b]
Produced in a specific region	3.92[a]	4.97	5.95[b]	5.79[b]	5.13
Indulgence	5.03	5.29	5.43	5.44	5.11
Enjoyable meal	5.02	5.27	5.39	5.44	5.06
Excellent taste	5.05	5.31	5.47	5.44	5.16
Convenience	5.53[b]	4.96	5.12	4.74[a]	4.63[a]
Convenient to buy	5.54[b]	4.65	4.86	4.28[a]	4.24[a]
Easy to prepare	5.52[b]	5.28	5.38	5.20	5.01[a]
Knowledge of the product		5.28	5.55	5.14	4.75[a]
n	214	211	206	208	108

[a] Significantly low compared to other cheeses.

[b] Significantly high compared to other cheeses.

of these positional advantages, however, is a point-of-difference because it shares these advantages with other offers. Its disadvantage is its price, which is considered high and not competitive.

Mountain cheese is perceived as healthy, although it does not have a certificate to prove it. Its points-of-difference are its animal and environmental friendly image. Its traditional production is an advantage that it shares with other cheeses. Its major disadvantage is that it is not convenient to buy.

Farm-made cheeses are competitively priced, like regular cheese, and traditionally produced, like mountain cheese and PDO cheese, which are points-of-parity. Its biggest disadvantage is its lack of convenience and it lacks a certificate that guarantees its safety. Moreover, many people lack knowledge of farm made cheese.

Notice that indulgence is a point-of-parity for all cheeses, which means that none of the cheese distinguishes itself on enjoyment or taste.

Market positioning of sausages

Table 8 shows how consumers evaluate the various sausages. Regular sausages have no points-of-difference because their low and competitive price is matched by PGI (i.e. Kranjska) sausage and

Table 8. Consumers perception of categories of sausages.

Perceived attributes of sausages	Regular	Organic	PDO/PGI	Farm made
Health	3.60[a]	4.68[b]	4.13	4.12
Nutritious	4.38[a]	4.92[b]	4.88[b]	5.24[b]
Improves health	2.87[a]	4.25[b]	3.25	3.42
Healthiness	3.23[a]	4.58[b]	3.56	3.95
Certificates as safety guarantees	3.92[a]	4.97[b]	4.85[b]	3.88[a]
Good price	3.71[b]	2.78[a]	3.55[b]	3.71[b]
Low price	3.47[b]	2.41[a]	3.28[b]	3.41[b]
Competitive price	3.95[b]	3.15[a]	3.81[b]	4.01[b]
Sustainable production	3.27[a]	4.22[b]	3.81[b]	4.01[b]
Fair price for producers	3.32[a]	3.68	3.89[b]	4.15[b]
Environmental friendly production	3.31[a]	4.78[b]	3.86	4.15
Animal friendly production	3.17[a]	4.21[b]	3.70	3.74
Traditional production	3.83[a]	4.60	5.45[b]	5.24[b]
Produced in Slovenia	4.28[a]	4.75	5.91[b]	5.60[b]
Traditionally produced	3.66[a]	4.58	5.18[b]	5.27[b]
Produced in a specific region	3.57[a]	4.46	5.26[b]	4.85
Indulgence	4.37[a]	4.92[b]	5.01[b]	5.33[b]
Enjoyable meal	4.30[a]	4.82[b]	4.85[b]	5.21[b]
Excellent taste	4.44[a]	5.03[b]	5.19[b]	5.45[b]
Convenience	5.15[a]	5.03[a]	5.59[b]	5.28
Convenient to buy	5.14	4.72[a]	5.42[b]	4.95
Easy to prepare	5.16[a]	5.34	5.76[b]	5.62[b]
Knowledge of the product		5.65[a]	6.12	6.39
n	119	118	118	117

[a] Significant low compared to other sausages.

[b] Significant high compared to other sausages.

farm made sausages. They have disadvantages on all other perceptual dimensions: healthiness, sustainability, tradition, taste, and convenience.

The points of parity for organic sausage are its perceived healthiness and its environmental and animal friendly production. However, it has disadvantages in price and convenience to buy, and many consumers know little about the product.

PDO/PGI (like Kranjska) sausage has a big positional advantage over its competitors on many dimensions: safety, price, a fair price for producers, traditional production, indulgence, and convenience. Moreover, most people know PGI (Kranjska) sausages very well. Convenience to buy is its point-of-difference, while all other characteristics are points of parity.

Farm-made sausages have no points-of-difference but many points-of-parity: nutritious, a low and competitive price, a fair price for producers, traditional production in Slovenia, enjoyable and excellent taste, and easy to prepare. It has few disadvantages. It only lacks a certificate that guarantees its safety.

Determinance of perceived food attributes

Perceived food characteristics indicated by consumers as relevant would be expected to have the biggest impact on consumer intentions to buy these products (i.e. determinance). To measure determinance, perceived food characteristics of products are regressed on consumer's intention to buy these products. Table 9 shows the results of these regression analyses.

High convenience and indulgence have a positive influence on consumers' intentions to buy cheeses, but healthiness, low prices, sustainable production do not influence consumers' intentions to buy cheese. Indulgence is the food characteristic which determines consumers' intentions to buy cheese, which is in line with the relevance of this food characteristic. Convenience, however, had only a

Table 9. Coefficients for OLS regressions of intentions to buy on perceived food characteristics of cheese and sausages.

	Behavioural intentions to buy	
	Cheese	Sausages
Healthiness	0.07	0.16
Good price	0.08	0.20[b]
Sustainable production	-0.14	-0.10
Traditional production	-0.06	-0.20
Indulgence	0.62[b]	0.81[b]
Convenience	0.32[b]	0.09
Knowledge	0.22[b]	0.25[b]
Dummy organic	-3.43[a]	-2.27[a]
Dummy PDO	-3.46[a]	-1.99[a]
Dummy Mountain	-3.78[a]	
Dummy Farm made	-3.86[a]	-1.70[a]
R^2	0.42	0.26
n	882	466
F	57.7	15.8

[a] Significant low compared to other cheese or sausages.

[b] Significant high compared to other cheese or sausages.

modest rating on relevance while it is one of the two food characteristics that have a positive influence on consumers' intention to buy cheese. Healthiness and sustainability rated high on relevance, but do not determine consumers' intentions to buy cheese.

Good price and indulgence determine consumers' intention to buy sausages. The determinance of indulgence is in line with its relevance. Good price, however, determines consumers' intention to buy sausages but is not considered a relevant food characteristic. Healthiness, sustainable production, traditional production and convenience do not determine consumers' intentions to buy cheese. Health and sustainability rated high on relevance, but do not determine consumers' intentions to buy cheese.

The negative dummy variables indicate that the intention to buy organic, PDO, mountain and farm made cheese is lower than for regular cheese; and that the food characteristics in our model do not account completely for this difference.

Three explanations are offered for the contradiction in these findings. First, consumers hold a minimum level for some food attributes. Below this level consumers will not buy the product but above this level it does not determine consumers' intention to buy. In other words, if all products meet the minimum level, these food attributes do not determine intentions to buy. Such food attributes are called 'dissatisfiers'. Healthiness and sustainability may be such attributes. Healthiness is important to consumers, but they expect that all the products meet health regulations and are thus not harmful for their health. Sustainability also is important to consumers, but they expect that all producers meet regulations and thus do not fall below their threshold level. Notice that these characteristics can determine intention to buy if products score below consumers' minimum level of acceptance. Examples of such are food scares and when products are scrutinized by NGOs. Second, heterogeneity in consumer preferences obscures the determinance of certain food attributes. Consequently, only attributes that are important for all or the majority of consumers are identified as determinants. Finally, consumers buy different products for different occasions and thus the determinance of food characteristics may depend on the occasion. Previous analyses do not account for this heterogeneity. In future studies heterogeneity between consumers will be explored.

Determinants of various cheeses and sausages

Table 10 and 11 show the determinants of the different cheeses and sausages, respectively in our study.

Table 10. Coefficients for OLS regression of perceptions of specific cheeses on intentions to buy specific cheeses.

	Behavioural intentions to buy				
	Regular cheese	Organic cheese	PDO cheese	Mountain cheese	Farm made cheese
Healthiness	0.38[b]	-0.13	0.31	-0.22	-0.31
Good price	-0.08	0.04	0.17	0.14	0.09
Sustainable production	-0.29	0.01	-0.15	-0.17	-0.04
Traditional production	-0.15	0.11	-0.33	0.08	0.17
Indulgence	0.64[b]	0.65[b]	0.82[b]	0.53[b]	0.60
Convenience	0.28	0.08	0.20	0.54[b]	0.57[b]
Knowledge		0.24[b]	0.28[b]	0.12	0.18
R^2	0.16	0.22	0.29	0.20	0.33
n	209	204	202	201	64
F	6.6**	7.9**	11.3**	7.0**	4.1**

Table 11. Coefficients for OLS regression of perceptions of specific sausages on intentions to buy specific sausages.

	Regular sausage	Organic sausage	PGI sausage	Farm made sausage
Healthiness	0.38	-0.13	0.26	0.34
Good price	0.04	0.25	0.25	0.14
Sustainable production	-0.51	-0.19	0.05	0.09
Traditional production	0.00	-0.19	-0.09	-0.26
Indulgence	0.72	0.79	0.61	0.99
Convenience	0.28	0.20	0.13	-0.34
Knowledge		0.17	0.21	0.59
R^2	0.20	0.19	0.23	0.34
n	117	116	116	117
F	11.3**	10.3**	13.4**	15.5

For all cheeses indulgence is a determinant. For regular cheese healthiness is also a determinant. For mountain cheese and farm-made cheese convenience is a determinant. Moreover, knowledge of the products positively influences consumers' intentions to buy organic and PDO cheese. These results have obvious implications for marketing different cheeses in Slovenia. Improving the taste of cheese is a fruitful avenue for all cheese producers. Regular cheese producers can improve their market position by improving the health perception of regular cheese. Organic and PDO cheese producers can improve their market position by increasing the knowledge (i.e. awareness) of the product. Mountain and Farm-made cheese producers can improve their performance by increasing also the convenience (to buy) of these products.

For all sausages indulgence is the determinant and consequently the marketing implication is that sausage producers should focus on and emphasize taste and enjoyment in their marketing strategies. Farm made sausages can improve their marketing position also by increasing the knowledge (i.e. awareness) of the product.

Conclusions

The marketing study presented in this paper has clear implications for Slovene farm-based processors of cheese. They have unique market positions. They are differentiated from regular cheese on healthiness, and on traditional and sustainable production. Such food characteristics can help processors of cheese to communicate with customers and build (brand) awareness. These food characteristics, however, do not determine consumers' purchases of cheese. Indulgence and convenience (to buy and prepare) do, but Slovene farm-based processors of cheese do not differentiate themselves on taste and even perform worse than regular cheese on convenience. The marketing study presented in this paper shows opportunities for Slovene farm-based processors of cheese to improve their market position: improve the taste and availability of their products.

Slovene farm-based processors of sausages also have unique market positions. Particularly PDO/PGI (i.e. Kranjska) sausage is differentiated from regular sausages on all dimensions of food characteristics, except price. This demonstrates the strong market position of PDO/PGI (i.e. Kranjska) sausage. Producers of farm-made sausages should try to increase the knowledge about their products (i.e. awareness), but it will be hard to distinguish itself from Kranjska sausage. They should also try to improve the taste even further.

The results demonstrate that consumers' stated attribute importance (i.e. relevance) should be used to identify market segments only with caution. The relationship with actual behaviour (i.e. determinance) is weak, which may result in faulty marketing decisions.

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Consumer attitudes to quality animal food products in Croatia

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Abstract

During the last two decades, significant changes in primary animal production and animal product markets have occurred. The transition of animal production in Croatia followed from the introduction of market economics that has imposed competitiveness as the primary criterion of future development. Transition changes resulted in specialization and intensification of production, enlargement of production units, introduction of a food control system throughout the entire production chain, ensuring traceability and other relevant information about the products. Liberalization of the food product market increased the demand for competitiveness and distinctiveness of national animal production. In the last decade, adjustments of legal norms concerned security, traceability and food labeling, so that consumers have complete information when making purchasing decisions. In addition, consumers' attitudes have changed significantly during the last two decades, and today, the hygienic safety, traceability and origin of the product have become essential criteria when purchasing food products. Research has shown that consumers in Croatia prefer food products produced within national agricultural production systems, and show a certain reserve towards imported food, especially from overseas countries. During the last decade, some animal producers tried to raise their competitiveness by creating recognizable trademarks, according to the designation of origin characteristics, traditionalism or geographical origin. Apart from strengthening competitiveness of primary production, this also enriched the supply of animal products, preserved the traditional heritage and genetic resources, and strengthened the capacity of rural areas. Consumers react positively to an improvement in the quality of animal products, preferring the products they have more reliable and complete information on. In Croatia, producers that share a common interest, especially the producers of traditional food products, cooperate to increase their market competitiveness.

Keywords: livestock production, food market, competitiveness, Croatia

Animal food production in Croatia

The major change in modern society is that the farming and agri-food sectors are faced with a general saturation of food markets in Europe and an increasing demand by consumers for high-quality products (Hocquette and Gigli, 2005). The important questions are thus, how to improve the quality of animal products to satisfy these new consumer requirements. Quality traits of raw products (muscle for beef and milk for dairy products) depend first of all on animal production factors (breeding and rearing, nutritional management), but quality traits of food products depend on animal physiology and tissue characteristics (Hocquette and Gigli, 2005). Consumers decide to purchase food products based on their expectations, the quality traits they recognize and the cost of the products.

Animal production in Croatia has a long tradition and certain specifics that determine local and regional distinctiveness. The current production technologies are a combination of modern and traditional technologies using various animal genotypes. This results in a variety of animal products with standard or typical quality characteristics. In general, animal production is dominated by conventional production technologies used to achieve high product yields and high production profitability. A smaller number of current production systems have integrated elements of traditional experiences with modern technologies, in an effort to find a better market position (such a niche market) and to achieve higher product prices. Consumers' interest in organic products has increased due to a higher awareness of product quality factors affecting nutritive and functional characteristics, traceability,

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product safety, compliance with the standards of animal welfare, and finally price. Changes in market liberalization have significantly boosted dynamic adjustments of production technologies to market demands, modernization or enrichment according to 'traditional' characteristics. Croatia's imminent accession to the European Union (EU) encourages these structural changes, using positive experiences from neighbouring countries (collaboration in implementation of breeding programs, projects of transboundary collaboration and others).

The dynamics of the structural changes in animal production of the Republic Croatia during recent decades differ amongst the production sectors (Table 1). The biggest changes have occurred in cattle and poultry production showing population decreases of 46.5% and 44.6% respectively. The decreases in the pig and sheep populations were more moderate (21.7% and 16.1%, respectively). However, the decreases in animal population were not paralleled by proportional decreases in product output (Table 2). In Croatia, as in almost all European countries (especially in the South East of Europe), structural changes in livestock production are taking place. Changes are manifested as an enlargement of farm units, introduction of modern technologies and management, introduction of higher producing genotypes, and market liberalization. Although these processes have resulted in population decreases, animal product output nationally has remained constant or has only decreased slightly.

Table 1. Numbers of domestic animals in Croatia during the last two decades (×1000) (Statistical Yearbooks of the Republic of Croatia 1990-2011).

Year	Cattle	Pigs	Sheep	Horse	Poultry	Beehives
1990	830	1,573	751	39	17,102	85
1992	590	1,182	539	26	13,142	59
1994	519	1,347	444	21	12,503	63
1996	461	1,197	427	21	10,993	62
1998	443	1,166	427	16	9,959	86
2000	427	1,233	528	11	11,256	98
2002	417	1,286	580	8	11,665	107
2004	466	1,489	721	10	11,185	119
2006	483	1,489	680	12	10,088	255
2008	454	1,104	643	16	10,015	310
2010	444	1,231	630	19	9,470	308

Table 2. Livestock production of animal food in Croatia (Statistical Yearbooks of the Republic of Croatia 1990-2011).

Year	Beef meat (1000 t)	Pig meat (1000 t)	Poultry meat (1000 t)	Cows' milk (1000 t)	Eggs (million pieces)	Honey (1000 t)
1980	150	250	106	1,060	972	0.85
1990	117	254	115	917	1,020	0.92
2000	63	164	93	607	774	1.58
2002	68	189	93	696	761	2.06
2004	73	183	88	684	801	2.54
2006	80	189	126	848	846	2.53
2008	80	168	133	828	787	2.71
2010	82	178	113	794	704	2.01

Specialization and intensification are more pronounced in the pig and poultry productions, which is evident from the acceptance of the newest technologies and genotypes, respect for stricter standards, especially regarding safety and animal welfare, and improved product quality. In cattle production, the technology intensification and changes in genotype have been modest due to the fact that traditional elements have been preserved in production systems. Since the Simmental (67%) dominates the total cattle population, producers are postponing production profiling, i.e. exclusive orientation to dairy or meat production using specialist breeds (Table 3). Sheep production, dominant in Mediterranean Croatia, has kept its traditional character based on native sheep genotypes excellently adapted to the local climate. Those same local sheep genotypes help preserve certain trademarks, such as Pag cheese, Pag lamb meat, Lika lamb meat and other products.

Dynamic of changes or adjustments in animal production are significantly affected by production conditions, structure and quality of available forages or pasture areas. Fragmentation of land used for quality forage production, especially in Mediterranean Croatia, hampers the enlargement of cattle and sheep farms. In the continental part of Croatia, due to availability of arable land for intensive forage and crop production, enlargement of farms with better organized pig, poultry and cattle production has occurred. However, introduction of the EU Nitrates Directive and other standards will make it difficult to manage farms lacking sufficient arable land.

Animal production has gone through significant qualitative and structural changes during the last two decades. While showing significant adaptability, traditionalism and distinctiveness have been preserved, allowing orientation in certain production directions and the shaping of recognizable animal products leading to trademarks. Consumers recognize the variety and distinctiveness of animal production, and their preferences facilitate adjustment to new market challenges and higher competitiveness of the national animal production sector.

Consumer habits in Croatia in terms of animal product consumption

Animal product consumption in Croatia is a reflection of consumers' attitude towards animal products, the price of such products, and consumers' purchasing power. The average annual meat consumption per capita includes 19.1 kg of poultry meat, 19.8 kg of pork, 8.7 kg of beef and 1.0 kg of sheep meat (Table 4). Beside meat products, an average of 77.4 kg of milk, 24.3 kg of dairy products and about 158 eggs are consumed annually (SYRC, 2011).

In terms of the structure of consumption, there is similar consumption of pork and poultry meat, while consumption of beef is much lower. During the last two decades, consumption of pork has

Table 3. Change in structure of cattle production in Croatia (Annual Reports of the Croatian Agricultural Agency 2000-2011; http://www.hpa.hr/).

Year	2000	2002	2004	2006	2008	2010
Share of cattle farms by number of cows per farm (%)						
1-15 cows/farm	98.71	98.23	96.65	93.63	90.38	92.24
>16 cows/farm	1.29	1.77	3.35	6.37	9.62	7.76
Share of Simmental and Holstein cows in milk recording (%)						
Simmental	74.36	74.15	77.88	72.29	69.34	65.95
Holstein	20.03	20.8	18.12	22.9	25.89	26.27
Milk production of Simmental and Holstein cows in standard lactation (kg)						
Simmental	4,020	4,426	4,424	4,552	4,559	4,990
Holstein	5,660	6,281	6,039	5,739	6,405	6,756

Table 4. Consumed quantities of animal food in Croatia (annual average per capita in kg) (Statistical Yearbooks of the Republic of Croatia 1990-2011).

Year	Beef meat	Pig meat	Sheep meat	Poultry meat	Milk	Dairy products
1980	14.6	13.7	1.0	12.0	100.0	-
1990	13.6	19.6	1.3	13.7	101.0	-
2000	9.9	14.5	0.6	19.7	87.7	24.8
2002	8.9	14.7	0.7	19.3	91.9	22.8
2004	9.3	16.4	1.0	19.0	84.6	23.6
2006	9.2	14.8	1.3	19.3	81.0	23.6
2008	9.2	15.5	1.2	17.0	74.8	23.9
2010	8.7	19.8	1.0	19.1	77.4	24.3

increased by 44.5%, and poultry meat increased by 59.2%, while beef consumption decreased by 40.4%. A significant decrease in beef consumption was recorded during the mid-nineties due to the bovine spongiform encephalopathy (BSE) crisis. However, the negative trend continued due to a decrease in the number of cattle (i.e. a shortage of quality calves for fattening), which resulted in higher beef price and lower competitiveness in comparison with pork or poultry meat prices. The current economic crisis has forced some consumers to regard product price as one the most important purchase criteria. As for milk and dairy products, stagnation in consumption of these can be observed, but there has been a slight increase in consumption of cheese. The consumers in Croatia can choose among a variety of cheeses, some of which are known in the global market (Pag cheese).

Quality labels of animal products in Croatia

From the consumers' point of view, the quality of animal products is defined as 'requested and valuable traits for consumers' (Mullen and Troy, 2005). Consumers' expectations are constantly growing in terms of animal product quality and availability according to their experiences in neighboring countries and increases in consumers' purchasing power. The general attitude is that the 'consumer has a right to quality and complete information about the food'. Nowadays, there are many aspects of animal food products that are important for a consumer unlike a few decades ago. Today, consumers are interested in production technology, healthiness of products (no antibiotics, heavy metals and pesticides), nutritive and functional value, sensory characteristics, together with information on origin and traceability, environmental protection and compliance with animal welfare regulations in the production process. Some farmers, especially those producing according to organic principles, establish direct contact with consumers (by e-mail, visits, etc.) in order to earn their trust in respect of organic products. Middle-aged and older consumers are especially interested in animal products produced according to traditional technologies and/or using native breeds. Due to memories of past times in rural areas, these consumers are willing to pay higher prices when buying organic products.

Because consumers cannot spontaneously assess the quality of food products, the value of those products is recognized through 'quality signals' (Hocquette and Gigli, 2005). Various forms of quality conventions exist: they may include quality traits based on origin or animal breeds, on production methods, or on specific supply-chain structure.

Before starting the EU accession process, the Republic of Croatia adopted strict legal regulations on health safety, quality and traceability of animal products (Food Act, Official Gazette No. 46/07). Traceability is defined as the possibility to trace food for human beings, food for animals, animals used for food production or materials used for inclusion or that are expected to be included in

food, or food for animals, through all phases of production, processing and distribution (Ministry of Agriculture, 2011). The current legislation entirely respects the norms of quality, safety and traceability of products, enabling an adjustment to traditional production technology and preservation of a variety of food products. Consumers have rightful expectations concerning the availability of information on about animal products. Thus, owing to the use of the modern information systems that connect animal identification registers, slaughterhouses, control laboratories and other supervisory institutions, consumers are offered basic information regulated by legal norms. Consumers can obtain basic product information, affecting purchasing decisions, at the point of sale. Regulation about labeling or declaring food defines the minimal norms on food and information that products need to contain (Ministry of Agriculture, 2011).

Conventional animal production offers to consumers in the market a generally high-quality animal product, standardized by labeling instructions. These product characteristics do not differ significantly from the characteristics of similar products imported from other countries. The products which contain elements of tradition, traditional processing procedures or native breeds, are trying to find their place in the market by promoting their strengths. Thus, for instance, the Gavrilović meat processing industry founded in 1690, emphasizes its long tradition as a guarantee of quality (www.gavrilovic.hr/). A dairy plant from the island of Pag also emphasizes its long tradition, especially its geographical position and native sheep breeds, as a precondition for high-quality production of the Pag cheese (www.paskasirana.hr/). There are numerous other products that have favourable preconditions for obtaining a trademark of special quality, identical to the labels assigned in EU countries.

Croatia has aligned its criteria for protection of agricultural products and food with the EU regulations. Assignment of the designation of origin, geographical origin or traditional reputation trademarks is defined by the Food Act and the corresponding Regulations, and thus coordinated with the principles of identical trademarks in EU countries. The 'Traditional Specialty' label is assigned to products reflecting traditional production, while the 'geographical identification' label is assigned to products originating from certain regions (i.e. being produced and/or processed and/or prepared in the relevant geographical area). 'Denomination of origin' is assigned to a product whose quality is essentially affected by natural and human factors that are specific to a certain geographical area (Ministry of Agriculture, 2011). Production, processing and preparation of products are completed within a defined geographical area. Foodstuffs with a registered designation of origin or geographical origin label on their declaration, apart from the registered label, also carry a visible sign such as 'Protected Denomination of Origin', 'Protected Geographical Identification' or 'Traditional Specialty Guarantee'.

There is an evident increase of interest among food producers in obtaining trademarks, but still only a small number of animal products have got them. Currently, several products are in the process of obtaining trademarks, including Istrian ham, Zagorje turkey and Istrian beef. The brands were established mainly for the purpose of controlling the quality of the product, with a special emphasis on the strict control of the traceability. Their producers face problems such as a lack of interest among producers in forming strong producer groups, insufficient processing capacity, insufficient support of regional administrations, and appropriate marketing management that fails to improve consumer perception of products´ specificity and value.

The producers who are trying to boost consumers' confidence in product quality offer additional information to that which is compulsory under the law. The emphasis is placed on originality, compliance with animal welfare and organic production regulations, and appropriate marketing that emphasizes the possibility for consumers to directly familiarize themselves with the production process. Organic animal production, which is relatively new in Croatia, can be mentioned in this context. A number of smaller producers, especially in the areas with extensive crop and animal production, recognize the opportunity for better affirmation and survival in the market. An additional

motivation for development of organic production is an immediate provision of financial subsidies to these farms, development of rural tourism and growth of interest in 'health' and 'functional' products. Crop and animal organic production in Croatia is presented in Table 5.

The consumers in Croatia are more inclined to consume food products that have characteristics of traditional production, as well as those products produced using national production capacities. For instance, Gajčević *et al.* (2007) reported a high consumer preference (96%) for the purchase and consumption of domestically farmed chicken. Also, 63% of consumers recognize the existence of trademarks when making purchasing decisions (Renko and Bošnjak, 2009). Product traceability as an indicator of quality is preferred by consumers and has imposed itself as important and essential product information. Traceability has been incorporated into the legal norms, obligating the participants in production and trade to comply with it (Food Act, Official Gazette No. 46/07). Traceability is evident from the product declaration that is mandatory for each product and must be filled according to the regulations, posted on or alongside the animal product.

Animal products in Croatia are labelled according to the legal norms and contain basic information about location and production systems, product origin, nutritional value of meat or milk, as well as a food safety control system. Taking into account consumer habits and an inclination for animal products produced using national animal production capacities, some of the producers and processors use specific trademarks to emphasize product origin and qualitative advantages preferred by consumers. Traceability control (i.e. control of the proper use of trademarks), is carried out by the Croatian Agricultural Agency, which is responsible for the central cattle register, and implementation of procedures used in dairy cattle selection control. An example of such a trademark is a graphical feature on a fresh milk bottle or carton, guaranteeing that the milk is produced on dairy farms in Croatia. Similar trademarks are used for labelling beef and pork produced in Croatia. In this way, domestic production is encouraged, along with the marketing of domestic products, and diversification of production directions.

Examples of production programs recognized by consumers

In terms of quantity, quality and variety, the supply of animal products in the Croatian market is similar to those found in the markets of other developed EU countries. Although domestic production satisfies most of the domestic demand, small quantities of almost all animal products are imported from other EU countries. For example, during 2011 from the 53,800 t of beef meat produced, 2,670

Table 5. Parameters of organic production in Croatia (Ministry of Agriculture Republic of Croatia (http://www.mps.hr/default.aspx?id=6184)).

Year	2006	2007	2008	2009	2010
Utilised agricultural areas (ha)					
Arable areas	2,958	2,916	2,800	9,766	17,066
Meadows and pastures	2,620	3,496	5,603	1,998	2,452
Species (heads)					
Cattle	345	2,749	5,813	6,144	9,796
Equine	19	134	417	484	452
Sheep	3,952	6,326	10,501	9,688	9,349
Goat	1,938	3,517	2,780	1,492	1,545
Pig	184	473	336	1,299	130
Poultry	1,180	2,885	3,597	1,612	1,137
Beehives	822	2,710	2,780	2,121	2,381

t originates from imported animals (98.5% of imported animals are imported for veal production; CAA, 2012). Present demand for pig meat is met using 16.2% of imported pigs (CAA, 2012). Consumers can buy some cheese varieties from France, ham from Italy, meat products from Slovenia, Austria, Germany or other countries. Market liberalization opened up an opportunity for consumers to dictate market trends, and consumer opinion came to be recognized as a key factor in creating the food path 'from farm to table'.

Within conventional production, consumers have a partially differentiated attitude towards the primary level products (less processed; fresh milk, fresh meat) and the secondary level products (products of milk or meat). When buying primary level products, consumers prefer products produced in Croatia, provided their price is not significantly higher than that of comparable imported products. Thus, it can be observed that consumers prefer milk or meat produced within domestic Croatian farms. When buying secondary level products, consumers are more selective, choosing products of better quality and acceptable price. Competitiveness is more pronounced within the secondary level products, since import and marketing of primary level products is almost unseen.

As for the distinctiveness of conventional production, consumers prefer certain traditional livestock practices, as well as production breeds. For example, the technology used in production of 'baby beef' in Croatia has been practiced for almost a century, using the Simmental breed. The beef produced in this system is appreciated in the domestic market due to its pink-red color, juiciness and moderate marbling. Such a production system is based on high energy diets, and the bulls are slaughtered at the age of between 15 and 18 months (Ivanković, 2008). The beef produced using long fattening periods or a high fodder diet does not achieve the quality features desired by consumers. The production of lamb meat is also specific for Croatia, since consumers prefer lighter lamb carcasses and specific sensory characteristics. Therefore, most of the lamb meat is produced in pasture system, with lower weight gains and lower slaughter weights than in conventional systems (Ivanković *et al.*, 2012). In the production of lamb meat, native sheep breeds are mostly used. Although all of the above mentioned products are recognized and demanded by consumers, they still lack specific trademarks.

In terms of distinctiveness of traditional production in Croatia, over the last few years, traditional production systems have been promoted, sometimes using native breeds. Examples include production programs of Istrian ham, Pag cheese (www.paskasirana.hr/), Zagorje turkey meat (http://www.zagorskipuran.hr/), Istrian beef (http://www.azrri.hr/), as well as traditional production of pig meat products such as 'kulen', (http://www.slavonski-kulen.com/). Native breeds (Istrian cattle, Black Slavonian pig, Zagorje turkey, Pag Island sheep, Istrian sheep) used in such programs have been reaffirmed, becoming less dependent on subsidies. The Istrian cattle meat production program initiated six years ago, demonstrates the interest in reference to the breed, to meat as material and to consumers, giving excellent results. The Istrian cattle meat production program resulted in an increase of 175% (from 379 to 1,041 heads) in the Istrian cattle population over the last six years. In such programs, it is especially important that the market approach is based on appropriate presentation of the qualitative characteristics of products.

For the success of these programs, it is important to obtain the support of the local community in order to make sure that the product is appropriately presented in the market (agro tourism), at a price which is acceptable to consumers, processors and farmers. Experience has shown that appropriate distribution of profit to all participants in the food production chain is very important for implementation of these programs. The production program of 'Istrian ham' labeled with its 'geographical origin' trademark is an example of how to care for traditional processed animal products, enriching the primary production and overall culinary diversity of the region. 'Pag cheese' is a product that can be found around the world, and the specific characteristics of its quality are determined by characteristics of the region (Mediterranean island pastures), genotype (Pag sheep) and production technology, that have been developed and preserved over the centuries.

Consumers in Croatia recognize and appreciate the labels assigned to the food as a confirmation that the food in question has been produced in controlled systems of health safety, that it has declared nutritional value, verifiable traceability, and characteristics appreciated by consumers (breed, region, production technology and other; Figure 1). Labels assigned to products are under the control of the competent public authority and interest associations, thus strengthening the distinctiveness and competitiveness of the products.

Figure 1. Some market labels of traditional and ecological animal product in Croatia.

Conclusions

In the last two decades, the attitudes and demands of consumers in Croatia regarding animal products have developed towards seeking higher nutritive and hygienic standards, better information about product, additional product values (traditionalism, organic, functional), animal welfare and environmental protection. Market liberalization stimulated dynamic changes in national animal production, processing and product distribution systems, thus contributing to availability of international food products in supermarkets. Consumers therefore have a greater choice between varieties of products, and they choose them depending on their attitudes and preferences, on the product price and other quality indicators. At the same time, a tested quality control and product traceability system provides consumers with all the information that is necessary to help them in their decision on their food purchases. Although market liberalization gave consumers a bigger choice of products, in Croatia, there is an evident preference for food with additional value produced within the national agricultural systems. Furthermore, a small number of consumers seek additional values in food through designation of origin, organic or native characteristics. Although aware of the advantages of a more direct approach to consumers, especially with products protected by appropriate designations, organic producers and processors still do not participate sufficiently in marketing. In order to satisfy consumer needs and demands, it is necessary to ensure the total reliability and traceability of products, attention to product variety and distinctiveness, and provision of all information that is necessary to inform consumers.

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Influence of gender, nutrition education and nutrition labelling format on nutrition quality assessment

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Abstract

This paper explores the influence of gender, nutrition education and nutrition labelling format on nutrition quality assessment and nutrition label format preference. Many studies have shown that it is mostly women who purchase food for households, indicating that research related to nutrition assessment may be female biased. In order to avoid this bias, female (n=15) and male (n=15) participants who are responsible or co-responsible for purchasing food in their households were selected from the general population in Croatia to participate in face-to-face multiple survey tasks. The results showed a significant influence of gender, education and nutrition labelling format on nutrition quality assessment. Men needed significantly less time for nutrition quality assessment than women. After nutrition education, survey participants needed significantly less time for assessment than before education. A visually re-designed current European back-of-pack nutrition label format proved the most effective format for research participants' nutrition quality assessment, but at the same time, participants found it difficult to understand. This study was limited to a small sample of participants but the results can later be used in testing a more representative sample. The study shed new light on consumer attitudes regarding current European nutrition label format, stressing the differences between men and women in nutrition quality assessment. The study also underlines the importance of effective nutrition education which should incorporate socio-demographic and cultural dimensions.

Keywords: nutrition labelling, nutrition education, gender, consumer, Croatia

Introduction

Since overweight and obesity problems (almost 80% of males and 50% of females) were noticed among Croatian people in a large cross-sectional study in the mid-1990, the Croatian Ministry of Health published the 'Croatian Nutrition Policy – A Strategy for Improving Food Quality and Diet' in 1999, focusing on strategic aims namely to achieve a population that is better informed about healthy eating, modify eating habits in order to reduce chronic non-communicable diseases that are causally associated with diet and produce safe food (Ministry of Health and National Institute of Public Health, 1999; Turek *et al*., 2001). To achieve these objectives key stakeholders have been identified: nutritionists, doctors, the food industry, legislators, consumers and media. Starting from these policy directions together with the necessity to fill the research gaps in food consumer attitudes from southern Europe, a research project on consumer attitudes to healthy eating and nutrition labels was established in 2005 in the Laboratory for Food Chemistry and Nutrition, Faculty of Food Technology and Biotechnology, University of Zagreb. With respect to this, in the first ever survey conducted among a representative sample of Croats, Ranilović *et al*. (2009) reported that Croatian people differ from the average in EU member countries in relation to attitudes regarding healthy eating (Lapalainnen *et al.,* 1998; Ranilović *et al.,* 2009). The most frequently mentioned concept of healthy eating among Croatian participants was 'fresh and natural foods' (50%) compared to 'less fatty foods' (49%) in EU countries. However, the results also showed that the youngest population group (15-24 years old) was more knowledgeable than others on healthy dietary guidelines (more fruit and vegetables, balance and variety, less fatty foods). Nevertheless, 53% of the representative

sample in Croatia believed there was no need to change eating habits. The most frequently used source of information about healthy eating was 'newspapers/magazines' (26%) while food labels were rarely mentioned (1%) compared to a 22% EU average score for food labels (Lapalainnen *et al*., 1998; Ranilović *et al.,* 2009).

Consumer research on preferable nutrition labelling formats started in USA in the early 1990s and followed in Europe ten years later (BEUC, 2005; European Heart Network, 2003; Food Standards Agency, 2001; Levy *et al*., 1991, 1996; Lewis and Yetley, 1992). Many findings related to this topics show that consumers prefer the idea of user friendly nutrition labels because of limited time spent in purchasing food, and confirm that difficulties in reading labels (small print) and understanding them (complex terminology) pose strong barriers to consumers in following recommended dietary practices (European Food Information Council, 2004, 2006; Grunert and Wills, 2007). The UK Food Standards Agency conducted a qualitative research project concerning various back-of-pack nutrition label formats which showed, on the one hand, that re-ordering, emboldening and boxing specific nutritional values for calories, fat, saturates and salt, and also adding 'Guideline Daily Amounts', could help people form an opinion on the healthiness of a product. On the other hand, participants do not like too much inconsistent and ambiguous information on the pack (Food Standards Agency, 2001).

Following results of the first survey relating consumer attitudes towards healthy eating in Croatia (Ranilović *et al.,* 2009), two other studies regarding nutrition label format showed no differences between regular label readers and non-regular label readers: bigger letter size and interpretational aids were beneficial to all who read nutrition labels on products (Ranilović and Colić Barić, 2011, 2012). However, recent studies originating from Europe emphasise the problem of voluntary nutrition labelling in the EU, unless claim is made, under Nutrition Labelling Directive 90/496/EEC (BEUC, 2005; Gracia *et al.,* 2007; Ranilović and Colić Barić, 2011). Consequently, the European consumer has no readily available tool to identify the healthiness of packed food when they wish to maintain regular dietary habits.

It was demonstrated that knowledge of macro and micro nutrient content of food affects the diet patterns of adults and children (Colić Barić *et al.,* 2004; Satia *et al*., 2005; Tussing and Chapman-Novakofski, 2005). In a study conducted among young American adolescents on understanding the Nutrition Facts label, Hawthorne *et al.* (2006) did not find significant sex difference in test scores between the boys and girls, before or after an educational session, although evidence to the contrary also exists (Hawthorne *et al.,* 2006; Pirouznia, 2001). Taking into account differences across these studies and also that numerous studies on reading and understanding nutrition information on food packages are female biased (Food Standards Agency, 2001; Satia *et al.,* 2005), the objective of present study was to assess the possible influence of gender, nutrition education and nutrition label appearance on nutrition quality assessment and nutrition label format preference, within the specific national background.

Participants, methods and materials

Participants

A convenience sample of 30 participants (15 men and 15 women), responsible or co-responsible for purchasing food, 18 years of age and older, were recruited from a city of 30,000 residents in Koprivnica-Krizevci County in Croatia. A majority of participants (60%) were 35-54 years old, had at least 12 years of education, had no health problems, and reported that they had read nutrition labels regularly in the last 12 months.

Methods

A face-to-face interview-assisted technique was used. The same interviewer, an educated female expert for such type of surveys, conducted all face-to-face interviews which lasted 45-60 minutes. She also provided participants with nutrition education. CIAA's (Confederation of the Food and Drink Industries) nutrition labelling education materials (CIAA, 2006) were the basis for the nutrition education material used in the survey. Educational material covered issues such as presentation of nutrition information (energy value, protein content, carbohydrate, sugars, fat, saturates, fibre and sodium (salt) with the addition of vitamins and minerals as percentages of the Recommended Daily Allowances per 100 g/ml or per serving). The importance of linking nutrients and physiological function in the body, discussion on Guideline Daily Amounts information and how to use it in daily dietary routine were explained. Interview protocol was pilot tested on three participants (whose answers were not used as outcomes of the survey), tape-recorded and analysed by experts in order to clarify survey questions and avoid possible misunderstandings. Final interview protocol consisted of: introduction of interviewer and survey objectives, quantitative research (comparison task) concerning nutrition formats before and after a nutrition education session, and qualitative research (preferences task) concerning nutrition label format preferences, assessed by participants after nutrition education. At the end of the interview and education, subjects were asked about socio-demographic and health characteristics and were rewarded for participating in the survey. All interviews were tape-recorded and transcribed for later use and analysis. Industry facilities were chosen as the research venues for interview and education, while the protocol for research was approved by the Review Board at the Faculty of Food Technology and Biotechnology, University of Zagreb. The study was carried out between June 20th and July 25th, 2008.

Materials

Label formats

Three back-of-pack nutrition labelling formats were selected on the basis of present European nutrition legislation (EU Council Directive, 1990; Regulation on nutrition labelling, 2009) and consumer related study conducted in the USA and UK (Food Standards Agency, 2001; Levy *et al.,* 1991, 1996; Lewis and Yetley, 1992). Each format displayed 8 nutrient components as stated in Article 4, Group 2 of European and Croatian legislation (EU Council Directive, 1990; Regulation on Nutrition Labelling, 2009), which are: energy value, protein content, carbohydrate, sugars, fat, saturates, fibre and sodium (salt). The three formats were designed and named respectively F-format, C-format and J-format. F-format (Figure 1) had a tabular form as suggested by the current European Directive, with a single quantitative declaration for each nutrient component, expressed per 100 g or per 100 ml and also per serving (per portion). Energy value was stated in kJ and kcal regardless of whether other macronutrients were stated in g per 100 g or per 100 ml and also per serving. Vitamins and minerals were declared in units, and as percentages of the recommended daily allowances (RDA), specified by the legislation (EU Council Directive, 1990; Regulation on Nutrition Labelling, 2009).

C-format (Figure 2) had the same visual arrangement as F-format, except that sugars, fat, saturates and sodium (salt) were emboldened and boxed to add visual focus on macronutrients of public health significance. CIAA's recommended Guideline Daily Amounts for adults (GDAs) were included inside the C-format table but placed below the nutrition information (CIAA, 2006).

J-format (Figure 3) had a different visual arrangement from F-format and C-format (quantitative information per 100 g or per 100 ml was given left of nutrients, while quantitative information per serving with GDAs was stated on the right side). Vitamins and minerals in J-format were separated by an emboldened line and information about single serving quantities and numbers of servings was added.

NUTRITION INFORMATION		
	100 ml	**Per serving (250 ml)**
Energy value	1,523 kJ (370 kcal)	457 kJ (111 kcal)
Protein	15 g	4 g
Carbohydrate	55 g	12 g
• of which sugars	40 g	8 g
Fat	10 g	3 g
• of which saturates	10 g	3 g
Fibre	6 g	2 g
Sodium (salt)	6 g (14 g)	1 g (3 g)
Vitamin B_2	0.8 mg (50%)*	0.3 mg (17%)*
Calcium	180 mg (23%)*	60 mg (8%)*

*Figure 1. F-format. * Percentage of the recommended daily allowance (RDA)*

NUTRITION INFORMATION		
	100 ml	**Per serving (240 ml)**
Energy value	176 kJ (42 kcal)	422 kJ (101 kcal)
Protein	3 g	7 g
Carbohydrate	5 g	12 g
- of which sugars	**4 g**	**9 g**
Fat	**1 g**	**2 g**
- of which saturates	**0.5 g**	**1 g**
Sodium (salt)	**0.03 g (0.1 g)**	**0.07 g (0.2 g)**
Fibre	0	0
Vitamin D	1 µg (20%)	2 µg (48%)
Calcium	180 mg (23%)	432 mg (55%)
Recommended guideline daily amounts for adults		
Energy value	8,500 kJ (2,000 kcal)	
Protein	50 g	
Carbohydrate	270 g	
Sugars	90 g	
Fat	70 g	
Saturates	20 g	
Sodium (salt)	2.4 g (6 g)	
Fibre	25 g	
Vitamin D	5 µg	
Calcium	800 mg	

Figure 2. C-format.

Products

The products used were divided into three categories: dehydrated soup concentrate was labelled with F-format, pasteurized milk was labelled with C-format and breakfast cereals were labelled with J-format. Inside each product category, there were 'healthier' and 'less healthy' versions of

NUTRITION INFORMATION			
Per serving (50 g) Whole package contains 12 servings			
Per 100 g		**Per serving**	**GDA* for Adults**
1,355 kJ (320 kcal)	Energy value	678 kJ (160 kcal)	8,500 kJ (2,000 kca)l
8 g	Protein	4 g	50 g
63 g	Carbohydrate	32 g	270 g
17 g	of which sugars	9 g	90 g
4 g	Fat	2 g	70 g
1 g	of which saturates	0.6 g	20 g
10 g	Fibre	5 g	25 g
0.05 g (0.13 g)	Sodium (Salt)	0.03 g (0.06 g)	2.4 g (6 g)
0.3 mg (20%)	Vitamin B_1	0.2 mg (10%)	1.4 mg
50 mg (83%)	Vitamin C	25 mg (42%)	60 mg
2 mg (15%)	Iron	1 mg (7%)	14 mg
80 mg (25%)	Magnesium	40 mg (13%)	300 mg

Figure 3. J-format.
** GDA Recommended guideline daily amounts for adults.*

the product for the purpose of the comparison tasks. The 'healthier' product version had a greater number of positive diet/health nutrients per 100 g or 100 ml, higher fibre, higher vitamin or mineral contents, and lower amounts of fat, saturates, carbohydrate, sugars, salt (sodium), and a lower energy value. To reduce possible biases between product and format for preference testing (the most and the least helpful label format), a fourth product, lasagne, was presented to participants with F, C, and J-formats. Participants expressed their preferences regarding the lasagne product according to the following parameters: format which influenced (the most or the least) the participants to buy the product, user-friendliness (clear, simple and easy to read or difficult), amount of information (adequate or too little) and appearance (preference for format feature, positive comments or non-preference for format feature, negative comments). Particular care was taken that the products appeared to the research participants as they would appear to customers in retail stores at the point-of-purchase.

Tasks and measures

Each research participant was guided by the interviewer and was asked to perform two tasks: the comparison task for the purpose of nutrition quality assessment and the preferences task for the purpose of nutrition label format preference (Levy *et al.,* 1991, 1996). Each comparison task included measuring correctly identified nutrient differences between pairs of products depending on various nutrition formats (accuracy) and time for assessment before and after nutrition education (quantitative measurement). For the quantitative task, participants were presented with pairs of products which originated from the same product category and with the visually same label format, but different in labelled nutrition quality (it was presented 'healthier' and 'less healthy' dehydrated soup concentrates product with F-format, then 'healthier' and 'less healthy' milk product with C-format, and likewise for the breakfast cereals product with J-format), and they were asked to identify all nutrition differences between pairs. The number of correctly identified nutrient differences was 5 for F and C formats and 10 for J-format. The interviewer measured the time required for the tasks until all products and formats were shown. After the first comparison task, participants were educated about nutrition information on products and the second comparison task followed. After the second comparison tasks, preference tasks followed. Participants were shown the fourth product (lasagne) labelled in

three formats (F, C, J), and were asked to choose the most and the least helpful format for selecting food products and the reasons for their choices.

Statistical analysis

The influence of nutrition education, nutrition label format and gender on accuracy and time needed for nutrition quality assessment, were identified by two three way analysis of variance (ANOVA 2×3×2) with repeated measures of the factors Education (2, before and after) and Formats (3, F, C, J), and independent groups identified by the Gender factor (2, female, male). The first analysis focused on the number of correctly identified nutrient differences as a dependent variable between products per 100 g or 100 ml (Accuracy). The second analysis focused on the time (Time) needed for accurate assessment. Preliminary analysis for score distribution and variance homogeneity showed that assumptions were not satisfied for such analysis; therefore the results should be interpreted with caution. Nevertheless, the benefits of the analysis employed were superior to alternative nonparametric tests that would test each effect separately. Besides, nonparametric tests have relatively lower power in testing hypotheses and could not evaluate the main interaction effects. In situations where assumptions for factor analysis of variance with dependent scores were not met, separate nonparametric and multivariate tests were made.

Results

Preliminary analysis showed that assumptions for the normality of distribution of the results were not met (Table 1). Significant deviations in asymmetry (skewness) and 'peakedness' of the probability distribution (kurtosis) were particularly noticed on C format before education for both Accuracy (Mean[1]=4.17, SD 1.15; skewness 0.53, kurtosis 4.75) and Time (Mean=64.9, SD 37.63; skewness 2.34, kurtosis 6.75). After education asymmetry deviations were noticed for Time (Mean=45.1,

Table 1. Performance measures (accuracy, time) by formats before and after nutrition education (comparison task).

Formats	n	Range[1] (number)	Nutrition education	Accuracy[2] (number)	SD	Skewness[3]	Kurtosis[4]	Time (sec)	SD	Skewness[3]	Kurtosis[4]
F	30	0-5	before	4.43	0.90	-0.71	0.69	85.2	50.32	1.98	4.5
			after	4.43	0.68	-0.80	-0.40	60.6	23.44	1.11	0.8
C	30	0-5	before	4.17	1.15	0.53	4.75	64.9	37.63	2.34	6.75
			after	4.00	1.05	-0.38	-0.55	45.1	19.04	1.24	1.93
J	30	0-10	before	7.30	2.39	-0.57	-0.71	81.2	32.35	0.92	0.56
			after	7.90	2.25	-0.78	-0.30	64.2	26.17	0.86	0.11

[1] Possible range of correctly identified nutrient differences beetween products from the same category.

[2] Mean number of correctly identified nutrient differences between products; larger numbers indicate more correctly identified nutrient differences.

[3] Skewness – measure of the asymmetry of the probability distribution (e.g. skewness >1.2 very strong asymmetry; <0.1 slight asymmetry).

[4] Kurtosis – measure of the 'peakedness' of the probability distribution (e.g. kurtosis >0 distribution is more 'peaked' from normal; <0 distribution is 'flatter' from normal distribution).

[1] Arithmetic mean.

SD 19.04; skewness 1.24, kurtosis 1.93). In most cases, high values of positive skewness and kurtosis indicate the possibility of extreme positive values.

Table 2 shows that there was significant influence of nutrition label format on accuracy and time, and significant influence of gender and education on time needed to complete the task. There were no significant interactions between factors in their effects on dependent variables.

Post-hoc tests for a significant difference between the formats with the Bonferroni correction showed significantly more correct answers for J format (Mean=7.60) compared to C format (Mean=4.08) or F format (Mean=4.43), with no significant difference between the latter two formats. All statistically significant differences were confirmed by separate nonparametric Friedman's tests before and after nutrition education. The results are illustrated in Figure 4. No statistically significant interactions were found. The highest interaction effect was between format and gender, while women had a slightly better accuracy score on J formats than men.

Results in Figure 5 show that men needed significantly less time ($P<0.05$) for assessment tasks (Mean=56.6 sec.) than women (Mean=77.2 sec.). After nutrition education, participants needed

Table 2. Main effects and interactions for three-way ANOVA for dependent variables (accuracy, time).

Effects	df1, df2[a]	F-test[b]	
		Accuracy	Time
Gender	1.28	0.31	7.01*
Formats	2.56	92.55***	10.77***
Education	1.28	0.58	12.96***
Formats * Gender	2.56	2.14	0.31
Education * Gender	1.28	0.03	0.59
Formats * Education	2.56	1.68	0.61
Formats * Education * Gender	2.56	0.77	0.59

[a] df = degrees of freedom.

[b] Significance: ***$P<0.001$; **$P<0.01$; *$P<0.05$.

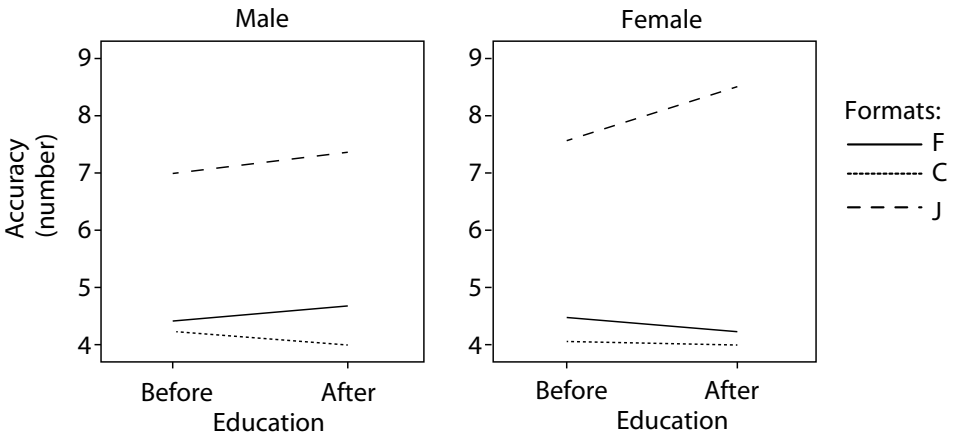

Figure 4. Gender influence on nutrition quality assessment (accuracy) for various formats, before and after nutrition education.

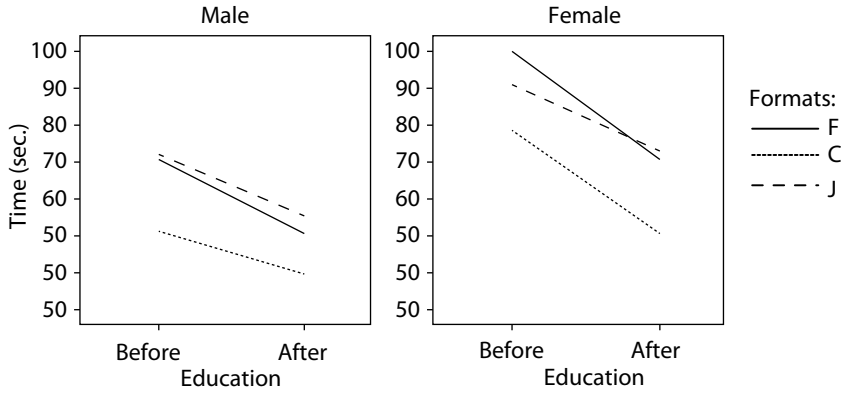

Figure 5. Gender influence on nutrition quality assessment (time) for various formats, before and after nutrition education.

significantly less time (P<0.05) for assessment (Mean=56.7 sec.) than before education (n=77.1 sec.). Among formats, post-hoc tests with Bonferroni correction showed that participants needed a significantly shorter time with C format (Mean=55.0 sec) compared to F format (Mean=72.9 sec) or J format (Mean=72.7 sec) which did not differ significantly. All significant differences were confirmed by separate nonparametric Friedman's tests, before and after nutrition education.

For approximately 50% of participants, the most preferred format before and after education was the C format (Table 3). They preferred it because it had adequate information, although also they found it confusing and hard to understand. F format was the least preferred by two-thirds of the participants. Most of the participants (93%) said that this format provided too little information and it had a poor appearance.

Table 3. Format preference measurements before and after nutrition education (preferences tasks).

Formats	n	Nutrition education	Percentage of subjects choosing each format and reason							
			Format choice		Easy of use[1]		Amount of information[2]		Arrangement[3]	
			Most helpful	Least helpful	Easy	Difficult	Adequate	Too little	Good	Poor
F	30	before	13	87	37	10	13	93	20	57
		after	10	80	40	13	10	90	17	50
C	30	before	47	7	27	63	50	0	50	13
		after	53	3	27	57	43	0	37	20
J	30	before	40	7	37	27	37	7	30	30
		after	37	17	33	30	47	10	47	30

[1] Easy includes clear, simple and easy to read. Difficult includes hard to read, confusing and contains too much information.
[2] Adequate information include GDAs, number of servings in whole package and has all the information needed. Too little information includes not enough information, no GDAs, servings in whole package.
[3] Good arrangement includes preference for a format feature. Poor arrangement includes dislike of a format feature.

Discussion

The results presented confirm previously reported qualitative and quantitative findings that food label format appearance does significantly influence consumers' abilities to use nutrition information (Levy *et al.,* 1991; Lewis and Yetley, 1992; Levy *et al.,* 1996; Food Standards Agency, 2001). The main conclusion of this study is that consumers used 'visual and dietary help' of a re-designed current European back-of-pack nutrition label, C-format in this study, to make faster assessment of the nutritional quality of products (sugars, fat, saturates and sodium (salt) were emboldened and boxed and GDA was added for adults). However, the C-format was not effective enough in assessment of product healthiness. Before and after nutrition education participants judged the amount of information on the C-format as adequate but still difficult to use. These findings provide experimental evidence in support of Grunert and Wills's (2007) hypothesis, that consumers' preference of formats is determined by conflicting desires for simplicity and full information at the same time. Also in line with previously published data, research results from the present study clearly indicate that European Institutions need to give consideration to re-designing the present European nutrition label format, as the next important step (BEUC, 2005; European Food Information Council 2004, 2006; Food Standards Agency, 2001; Grunert and Wills, 2007; Ranilović and Colić Barić, 2011, 2012).

Although the importance of nutrition education programs has been well documented, this paper, in agreement with some US studies, additionally raises the question of nutrition education efficiency. After the nutrition education conducted in this study, the participants probably felt more familiar with nutrition issues and required a significantly shorter time for the assessment of nutrition quality. However, the improvement in the accuracy of assessment of nutrition quality after education was not the same for all tested label formats.

Bearing in mind the necessity for nutrition education established by the Croatian Nutrition Policy, the presented results show that education itself is not sufficient if effectiveness is not achieved. It implies that other nutrition education strategies should be considered. Cullen *et al*. (2001) suggested a goal setting strategy presented in a 4 step process, based on recognizing a need for change, establishing a goal, adopting a goal and self-monitoring/self-rewarding goal attainment. This would likely lead to dietary behaviour change. Some authors suggest the specific environment to be considered for the optimal goal-setting procedure, while other US practitioners stress the importance of lifestyles, values and culture of individuals.

One of the goals of this study was to assess the interpretation of nutrition information by male and female participants before and after nutrition education. Since after education both genders needed significantly less time in nutrition quality assessment, men were significantly faster than women.

It suggests different decision-making approaches in food purchasing between men and women, with men searching for instant information that would reduce their time for purchase. Whether purchasing food or other goods, the shopping behaviour of men is obviously different to that of women, as underlined in the economic research by Bakewell and Mitchell (2006).

No significant sex differences were found in assessment of accuracy of nutritionally different products before and after education, which is in agreement with other published results (Hawthorne *et al.,* 2006). This conclusion, though, should be interpreted with caution, because of the rather small sample on which this study was based and may not represent the general population of men and women in Croatia. Therefore the validity of findings should be checked using a fully representative sample.

Regardless of the limitations of this study, the findings can be considered as contributing to the first project on consumer attitudes towards healthy eating and nutrition label habits in Croatia. Therefore, the results presented can assist both in helping the general public to shape an effective strategy

for better dietary practice in Croatia, as well as providing some preliminary information on food consumer attitudes in south central Europe.

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Consumer attitudes to the animal food quality products in Serbia

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Abstract

The objective of this study was to determine consumer attitudes to animal food quality products in Serbia. The study was carried out in two steps. First, qualitative research was carried out by interviewing experts, which provided information on the main strengths and weaknesses of Serbian food products. Second, standardized face-to-face interviews with consumers were conducted. The attitudes were summarized using descriptive statistics and analysis of variance. The quality products of animal origin in this study included the local, traditional and organic products. The results showed that consumers tend to prefer quality over price. It is important to underline that in Serbia there is limited research in this field and consumers tend to provide socially desirable responses. Consumers in Serbia allocate about 40% of total income to food. Serbian consumers tend to enjoy food shopping more than other consumers in the Region and they have the least pronounced ethnocentrism.

Keywords: consumer, Serbia, animal food quality products, attitudes

Introduction

Serbian consumers

In recent years, consumers in the Republic of Serbia went through specific phases, which have determined their behaviour. In the early 90s of the last century (1991-1995) due to the war in the former Yugoslavia, the Republic of Serbia was internationally isolated and placed under sanctions. The decline in standard of living and the general shortage of consumer goods, which resulted from these circumstances, have determined the behaviour of consumers[1].

During this period the basic models of consumer behaviour were various strategies for survival and satisfaction of basic biological needs. First, the consumers purchased basic groceries, paying no attention to quality. Second, meals outside the household almost totally ceased and food was prepared in households with no spices and other condiments that were a luxury for the average consumer. Finally, when consumers were not able to provide enough food, they first reduced the size of meals and after that, when the crisis intensified, they reduced the number of daily meals.

In 2000, democratic changes came to Serbia, together with changes in the business environment and improvement of economic conditions. This has been reflected by the improved position of the consumers. In the period 2006 to 2010, there was a decrease in consumption of meat, except of poultry, while in the case of milk and dairy products there was a decrease in milk consumption, but an overall increase in consumption of dairy products (SORS, 2010)[2]. The decrease in consumption was due to reduced consumer purchasing power and increased retail prices.

[1] After a brief recovery in the period 1996-1998, there was a NATO bombing of Serbia lasting 78 days (from 23rd March to 9th June 1999), which resulted in an additional decline in living standard.

[2] Consumption per capita of animal products in the Republic of Serbia amounted to 57.67 kg total meat, 5.4 kg fish, 55.8 liter milk, 26.63 liter sour milk, yogurt and similar products, 16.37 kg white cheese and other dairy products, and 217 eggs. In EU countries, meat consumption was nearly twice as high (97.4 kg) as in Serbia.

Analysis

Analysis of food consumption in the Republic of Serbia in the past has largely been concentrated on economics based on secondary data sources. In these analyses, based on data from official statistics, the consumption trends and consumption characteristics of population groups were shown for selected criteria for which data was available (Stevanovic *et al*., 2001; Vlahovic *et al*., 2005; Zaric *et al*., 2011). In addition, the scientists of the Republic of Serbia were devoting attention to the health aspects of food, resulting in a domination of the technological characteristics of food in the analyses (Miletic *et al*., 2008).

More recently, Serbian researchers paid more attention to analysis of consumer attitudes to agricultural and food products, and to consumer opinion on certain types of agricultural and food products. For example, consumers' perceptions of dairy products have been analysed (Vlahovic *et al*., 2005), as have perceptions of vegetables (Rodic *et al*., 2007) and attitudes to functional foods (Stojanovic *et al*., 2010). Some Serbian studies have dealt with the attitudes of consumers in the context of competitiveness (Zaric, 2008) or regional and rural development (Vasiljevic *et al*., 2011). It is interesting to note that studies dedicated to consumer behaviour in the Western Balkans (Žabkar *et al*., 2009) indicate similarities and differences in models of consumer behaviour in Slovenia, Croatia, Bosnia-Herzegovina and Serbia.

Definition of food quality

The international literature on consumer attitudes is extensive (see for example Chambers *et al.*, 2008) and is dedicated to different aspects of food. Research found that consumers have considerable difficulty in defining the desired quality. The basic question is: what is meant by quality or how can quality be defined. A practical approach in the case of meat, for example, is that the best quality meat is the one a buyer is willing to pay for, while a seller gets as high a price as possible (Radovanovic, 1994).

However, at the present time the concept of food quality is very complex and heterogeneous. The definition of food quality from the consumers' point of view has been established on the basis of individual perceptions. In the literature it is customary to classify quality in three dimensions – search, experience and confidence (Roehr *et al*., 2005).

The search dimension is where the buyer can ensure product quality when purchasing. This is usually based on sensory properties of products, appearance, colour and smell. Customers often evaluate the quality of fresh meat in this way. Experience as a dimension of quality is when quality can be evaluated only after purchase of the product and evaluation of its taste. In respect of meat, it is only when the meat is prepared that the consumer can be assured of its taste.

Trust as an element of quality means that the average consumer can never determine the quality of the product, but must trust others to assess whether a product is correct in terms of health or if, for example, it was produced organically (Bech-Larsen and Grunert, 2001; Becker, 1999). Here it is important to note that the consumer cannot assess quality in relation to the production methods or ingredients either before or after consumption. So trust, as a part of quality, becomes an important variable that defines the behaviour of consumers. An aspect of trust is the greater need for information. Therefore, suppliers try to inform consumers by specific measures to create confidence in the quality of their products. Thus, for example, farms dealing with organic production in the Republic of Serbia have organized themselves into associations with internal rules of production which are strictly controlled and they inform the consumers of these (Koester and Zaric, 2009).

In order to distinguish conventional and organic production, producers in the Republic of Serbia apply special rules to production. Regarding applied practices, producers provide information to consumers emphasizing that they produce high quality, organic and safe food. The term 'organic food' is interpreted in many ways. Organically produced food is referred to as natural food, which means it has no artificial colours or additives. The source of food is also considered a characteristic of organic food. Organic food is also defined as food for whose production artificial fertilizer, pesticides and other 'toxic' chemicals were not used. Finally, organic food may be described as food produced without the use of genetically modified organisms. This understanding of organic production in Serbia is similar to the concepts of organic production of other European consumers (Stolz *et al*., 2011).

Proof of food quality

Proof of production has become particularly topical after the so-called food crises in Europe. The appearance of bovine spongiform encephalopathy (BSE) in Europe has resulted in the concepts of quality and safety being devoted considerably more attention both in research and in the media. At the time of the BSE crisis, the Republic of Serbia had different challenges to other European countries, so Serbian consumers did not particularly pay attention to this phenomenon. In Serbia, consumers simply expected that the products on the market were of high quality and safe.

However, with the appearance of the first outbreak of food poisoning, the situation in the Republic of Serbia started to change and consumers have begun to realize the importance of safety of products and that this is one of the characteristics of product quality. When this became apparent, it created the need for information on health safety amongst consumers. In addition to food safety, the producers in the Republic of Serbia are trying to convey the message to consumers that local products and traditional products are of high quality (Koester and Zaric, 2009). The quality of local products results from the special characteristics of the raw materials and the production process, whilst traditional products have the quality of the specific production knowledge and skills that cannot be found in other parts of Serbia (Zaric *et al*., 2010).

The recent analysis of consumers' attitudes in the Republic of Serbia regarding the quality of products has been carried out mainly as an integral part of consumer attitudes research, and not as a specific research topic. The quality of products has been mostly defined based on the nutritional properties or possible positive effects on health. These quality characteristics can be grouped into dimensions of experience and search. Therefore, in this paper, attention is paid to the product quality dimension that arises from the trust consumers have in a particular product.

Trust is crucial for a willingness to pay a higher price for a specific product. Research shows that most customers are willing to pay higher prices for products that have evidence of the production process. Willingness to pay higher prices is more expressed in the case of food originating from animals than originating from plants (Kuhnert *et al*., 2002; Roehr *et al*., 2005). Therefore, the goal of this paper is to examine consumers' attitudes towards high quality products of animal origin. In this study, high quality products are defined as the local, traditional or organic animal products.

Although the Serbian consumers went through periods of great shortages, they are becoming more demanding in terms of food quality, while the perception of quality, particularly of meat and animal products, is changing quickly. The research on consumers' attitudes towards the quality of animal products can provide important information to food providers on how they should communicate with the Serbian consumers.

Research methods

Research on consumer perception of the quality of traditional and local products was carried out in two phases. In the first phase qualitative research was carried out by interviewing experts. The objective of this study was to collect as much information as possible on traditional and local products of the Republic of Serbia. The instrument used was a structured questionnaire, which included a list of questions, mostly open-ended type ones, so that the polled persons were not restricted in their responses.

The survey was conducted during a scientific and professional seminar that was held in 2008 at the Faculty of Agriculture, University of Belgrade. The seminar was attended by representatives of all the research institutions from Serbia engaged in research on food production and processing, representatives of economics and administration, representatives from the Region (WBCs), and finally, the best students from the Faculties of Agriculture of the Republic of Serbia. Based on the participant list, a systematic selection was made of participants based on the institutions and locations from which they came. A total of 49 persons were interviewed. Trained interviewers conducted the survey face to face with the selected individuals and recorded the answers on printed questionnaires (Zaric *et al*., 2010).

After the above mentioned interview of experts, a second phase survey was conducted on consumers' attitudes to traditional and local products using a simple random sample of 138 persons from Belgrade, the single most important market in the Republic of Serbia. 64% of the polled persons were female, confirming the results of a previous study that women participate more in shopping than men. Most of the polled persons were aged 31 to 50 years, which is also the group with most income to spend. The age structure of polled persons is given in Table 1.

The majority of polled persons were college and university graduates (57%), while 37% had secondary education and the rest had just elementary school education. The questionnaire was a closed type with an offered list of answers. The survey was conducted by the same interviewers as in the first phase of the study. It was carried out at places with a large concentration of consumers: in front of supermarkets, small stores and green markets. Surveys were completed by the interviewers and in addition to the answers to the specific questions, all comments and observations of the interviewed persons were noted. The study was conducted over five days and after each of days there was a meeting between the interviewers and researchers in order to evaluate the observations of consumers' behaviour in the areas where the survey was conducted. The collected data was analyzed using mainly descriptive statistics, but for specific aspects, analysis of variance (ANOVA) was used.

Research on consumer attitudes towards organic products in the Republic of Serbia made use of previous studies (Rodic *et al*., 2003). This study was conducted on a random sample of 300 persons in the city of Novi Sad, using a questionnaire, in 'face-to-face' contact with the polled persons. For this group of polled consumers, important variables for decision making were the systems of poultry raising (93.3%) and feeding (94.3%).

Table 1. The age structure of polled persons (Zaric et al*., 2010).*

Age group (years)	Up to 17	18-30	31-50	51-65
Number of persons	1	43	50	44

Results

Interviews with experts and students on local and traditional products

In the first phase of the study, the individuals, who were well informed on the situation in agriculture and food industry, were asked to name the most renowned local products and producers. The first ranked product was named by 17.7% of polled persons, while the second ranked was named by 11.5%. The largest group consisted of products that were named by less than 5% of polled persons. The large number of products mentioned tells us that some products are well-known locally and have built a recognizable position with the users, but they are unknown at the national level.

All listed products were industrial produced ones and they could not be classified either as local or traditional. These data show that even persons who were well informed on agricultural production in the Republic of Serbia, were not familiar with these two product groups. The best-known food producers were also from the field of industry, where interviewed persons have cited both producers of plant and animal products. This is an expected result, given the fact that Serbia is relatively small and has a transparent market.

According to the experts' opinions the main advantages of domestic products are quality (34.5%), traditional production and local origin (12.2%), favourable price (10.8%) and safety (10.1%). These were the spontaneous replies by the polled persons to the question 'According to your opinion, what are the most important advantages of domestic products?'

Also, a question was asked 'What are, in your opinion, the main shortcomings of domestic products?' The responses were as follows: inappropriate marketing (35.4%), followed by variable and low quality (17.7%), then inadequate design and packaging (16.7%). In order to improve the position on the domestic market the main proposals were development of marketing (26.7%), government assistance (12.9%) and staff development (11.2%).

To the question 'which traditional products have high quality', a number of product groups were identified, of which three out of ten were of animal origin, while the rest were of plant origin.

Consumer survey on local and traditional products

Based on previous studies and activities of the Ministry of Agriculture, Trade, Forestry and Water Management of the Republic of Serbia, a list of traditional and local products was compiled that

Table 2. High quality products in the Republic of Serbia (Zaric et al*., 2010).*

Product groups	%
Brandy	13.6
Cheese	10.1
Traditional meat-processed products	10.1
Cream cheese (Kajmak)	9.5
Ajvar	7.1
Wine	5.9
Raspberry	5.9
Processed fruit and vegetables	5.9
Fresh and dried fruit	5.3
Frozen ready-made products (Sarma and Burek)	4.1

have potential and could protect their names as products of geographical origin. In this part of the study, a question was asked on how well consumers are informed about those products (Table 2).

The answers were given on a scale of from 1 (never heard) to 5 (could not get by without them). In this paper only the results relating to the products of animal origin are presented.[3] The average score on this question was 2.4 which lies between the replies 'the products are known but I do not use them' and 'I use them sometimes'. This tells us that the interviewed persons do not use the traditional and local products that were on the list to any great extent. The next question was on how long they use traditional products, for the group of consumers that used them and the answer was 'more than a year.'

The Republic of Serbia is well-known for honey production and its export, so a question was also asked to the consumers if they use honey. Overall, 92% of them answered that they use honey, with 9 different types of honey from 39 locations in Serbia listed. This is not surprising since in Serbia a large number of small honey producers exist and most of them sell their products through direct marketing.

In most cases, purchase of traditional products is a part of the tradition in households, so the relevant information is transmitted within the household (41%), or it is received from relatives and friends (35%) (Figure 1).

It can be concluded that the most common form of obtaining information about traditional products is 'by word of mouth' with the second most common being friends and relatives. These two ways of becoming familiar with local products are prevalent in the opinion of 76% of polled persons. Advertising through various types of media is an important source of information for one-fifth of polled persons. Almost all polled persons had heard of the domestic products that were listed in the survey.

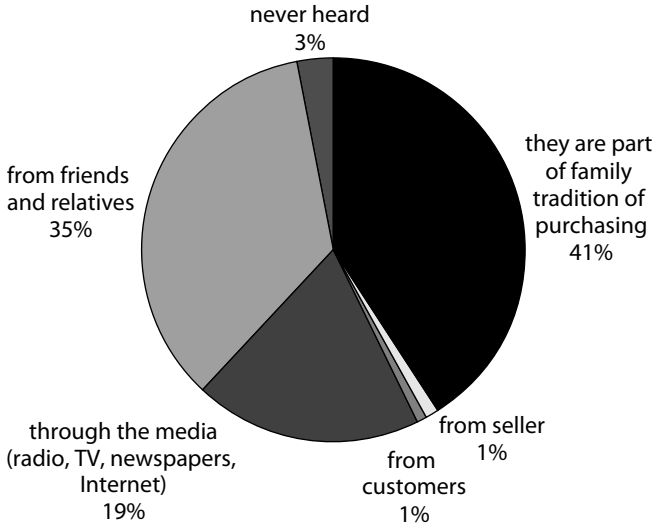

Figure 1. Source of information on traditional products (Zaric et al.*, 2010).*

[3] Out of 24 products that were on the potential list for the protection of geographical origin, 17 were products of animal origin.

As shown in Figure 2, domestic agricultural and food products are relatively common in households' consumption, as 43% of polled persons stated that they used them at least several times a week, while 15% used them every day.

As for familiarity with domestic products, there were a negligible number of polled persons who did not use these products at all. This finding supports the hypothesis that the Republic of Serbia is a country where the food is of good quality and the local population pays great attention to nutrition.

With regard to promotion of these products (Figure 3) it is interesting to note that only a small proportion of polled persons are either very satisfied (4%) or dissatisfied (5%). Some 37% of polled persons are satisfied with promotion. However, most of the interviewed persons are either dissatisfied with promotion or they have no opinion on it.

These results suggest that marketing activities aimed at familiarizing consumers with local products are some of the key success factors, and that recent activities in this area have not yielded satisfactory results. This is confirmed by the fact that almost one third of polled persons have no opinion on the promotion. Communication with consumers is essential in informing their views on traditional products.

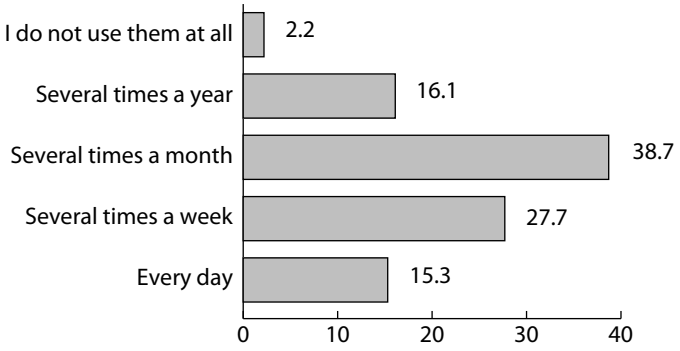

Figure 2. The frequency of consumption/purchase of traditional products (Zaric et al.*, 2010).*

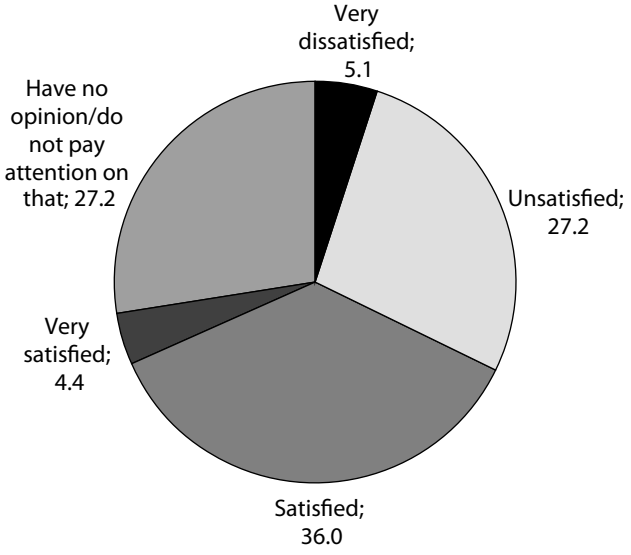

Figure 3. Consumer opinion on the promotion of traditional products (Zaric et al.*, 2010).*

In terms of quality (Figure 4) almost all interviewed persons believe that the quality of local products is high and some 10% of the interviewed persons considered they have exceptional quality. However, almost half of the polled persons gave an assessment that the prices of domestic products are higher than expected, while some 38% think that the prices are realistic. This finding led to the conclusion that price is an important decision factor.

In support of this finding is the answer to the question 'What would you prefer to change in the case of mentioned agricultural and food products?' The largest number of polled persons answered that they would change the price (42%) followed by packaging (22%). The answer on changing packaging confirms consumers' opinion that domestic products have unsatisfactory design and packaging.

Based on these answers, we can conclude that the producers of local products have to be careful in implementing pricing strategies, as there could be a significant loss of consumers because of the high prices. It is also recommended to adjust the packaging according to the requirements of customers.

Consumers were asked to rate the importance of certain variables for the purchase of a product. The question was 'Please rate the importance of variables for the purchase of a product?' The variables were quality, price, packaging volume, purchasing place and product familiarity (Figure 5). Evaluation of these variables was conducted on a scale of 1 to 5; where 1 meant least important and 5 was most important.

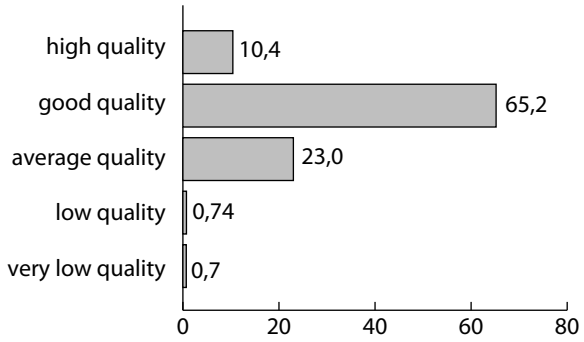

Figure 4. Quality of the traditional products (Zaric et al.*, 2010).*

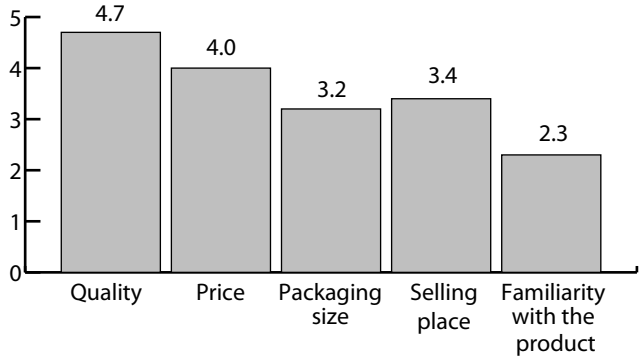

Figure 5. Importance of variables for purchase (Zaric et al.*, 2010).*

In terms of product selection, most emphasis was laid to quality (average score 4.7) and then on price (4.0). Size of packaging and point of sale had moderate impacts on purchase decisions, while familiarity with the product had only a small role.

The primary decision criterion of Serbian consumers with regard to animal products, especially meat, seems to be quality. Such findings are consistent with results obtained in previous study on consumer perceptions in Serbia (Ostojic *et al*., 2006; Rodic *et al*., 2003).

Ostojic *et al*. (2006) describes the criteria for decision making on the choice of the main types of meat[4] as quality, price and health.

Ostojic *et al.* (2006) also showed that quality is the most important criterion in decision making in the case of pork (84.4%), chicken (63.5%), beef (81.2%) and sheep meat (81.2%). Price was considered important to 15.6% of consumers for pork and 20.9% of consumers for chicken. Since none of the consumers stated price as a criterion for decision making for beef and sheep meat, this could lead to the conclusion that the price of beef and sheep meat is not a decisive factor (Ostojic *et al*., 2006).

This is surprising and contrary to findings from studies in other countries. One reason for this result might be found in the research method. Consumers were asked to select from the given variables. One reason why pork and poultry meat dominate meat consumption in Serbia is that consumers are price sensitive. The beef consumers are either consumers with higher living standards or consumers that have some health problems. These situations are not necessarily price sensitive so demand does not depend on market price. In the case of sheep meat, especially lamb, estimated consumption is low at about 1.5 kg per capita (SORS, 2010). Lamb is consumed only occasionally during the year, usually on traditional and religious occasions. For those occasions people would not substitute this meat with other meat regardless of the price.

Medical reasons and recommendations of nutritionists have a role in the case of beef (18.8% of consumers) and chicken (15.5% of consumers), and are slightly less important in the case of sheep meat (5.4% of consumers). The expected result is that pork is not purchased because of health reasons. It is important to note that in this study there was no definition of quality, nor was the willingness of consumers to pay a higher price for higher quality discussed. Similar results were obtained from other studies, which stated that personal opinion on the appearance of the product based on colour, size and overall appearance plays an important role (Rodic *et al*., 2003).

On the basis of our study it can be concluded (Figure 6) that the products of domestic origin are generally purchased in megamarkets (26%), supermarkets (22%), green market (21%) or elsewhere (22%). Based on the above, it can be concluded that the producers of local products must have at their disposal sufficient quantities of standard quality products all year round, so that their products can be always available in major retail chains. Given the low importance of small shops in the marketing of these products (8%), the producers could not rely on this channel of distribution.

Almost 80% of polled persons said that they would continue to buy domestic products (Figure 7), which reflects the loyalty to these products. Perhaps those results were affected by the Ministry of Trade's campaign 'Let's Buy Domestic' of the Republic of Serbia Government started in 2004 and is still continuing. At the same time, there is a more pronounced confidence in the product than in the supplier, as 64% of polled persons said that they change the seller, but without specifying how often they do that.

[4] Out of the total meat consumption in Serbia, pork is relatively the most important (40% of total consumption), followed by poultry (31%), beef (21%), sheep (5%) and the remaining 3% were other types of meat.

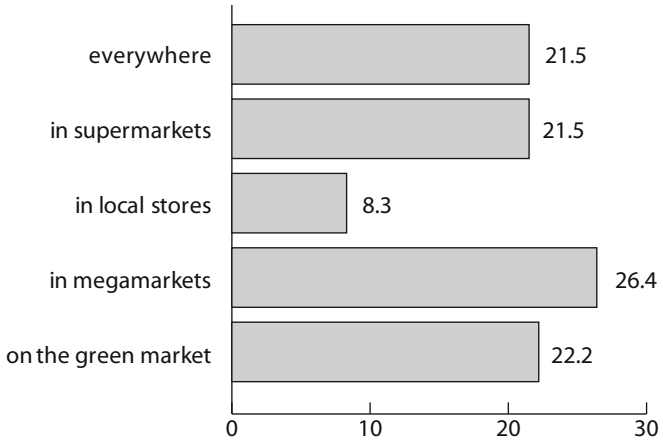

Figure 6. Place of traditional products' purchase (Zaric et al.*, 2010).*

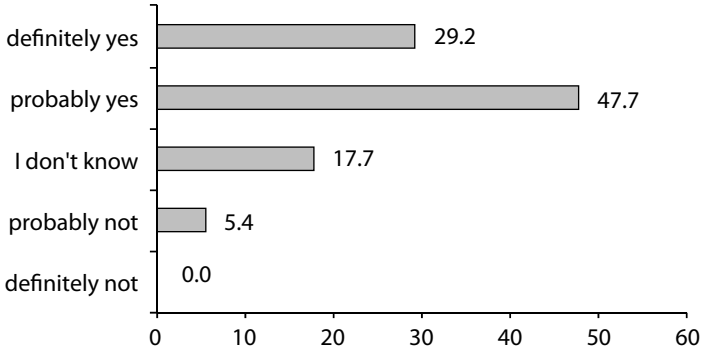

Figure 7. Willingness to purchase/use traditional products in the future (Zaric et al.*, 2010).*

All polled persons would recommend some of the local products, but there are a large number of products that are known only at local level as they are listed in the recommendations and those products were not offered in the survey. It is interesting to note that there is a group of consumers (some 20%) who buy only imported products, which is an additional challenge for domestic suppliers. However, this group of consumers cited a lack of domestic supply (e.g. olive oil) as the reason for buying foreign products.

Consumer attitudes towards organic products

Regarding organic product and results (Rodic *et al*., 2003), most polled persons believe that products from an extensive farming system are healthier and safer than products from intensive farming systems (Rodic *et al*., 2003). It is increasing that a number of consumers in the Republic of Serbia prefer products from an extensive system of farming (Sudarević, 2002).

Consumers in Serbia have a third option, to purchase chicken meat from semi intensive farming which they prefer most (72.2%). This is so despite the fact that they consider the products from extensive rearing systems to be healthier. This is probably because the price of the semi intensively farmed product is not as high as the extensively farmed product.

The surveyed consumers are willing to pay more (71.3%) for products that come from extensive raising systems, if they have reliable supporting information. However, most consumers (92.1%) are

willing to pay only up to 30% more (Rodic *et al*., 2003). The higher prices of 20-40% for organic agricultural products compared to conventional products are considered a sufficient incentive even for suppliers in Serbia (Sudarević, 2002). The meat from organic production can achieve up to twice the normal price in developed countries.

Discussion

Survey of experts and best students

The survey of experts and best students showed that the main advantages of Serbian food products are quality, tradition and local origin of product. These findings confirm the main hypothesis that Serbia produces high quality food products.

Inadequate marketing, variable quality and inappropriate design and packaging are the main disadvantages. The poor marketing applies especially to traditional products. If we look at the answers that experts gave to the question on the most famous trademarks and brands of Serbia, we can conclude that in this group of products the largest share are industrial products, confirming previous observations that traditional products have inadequate marketing.

Regarding this result it is important to note that the polled persons did not have prior information about the study. The polled persons had experience on food production and processing, so their responses may be considered relevant for assessing the situation. As each interviewed person was free to express his or her opinion and to give several answers to a question, the number of responses was greater than the number of polled persons. The relative numbers were calculated based on the sum of particular responses in relation to the total number of responses.

However, quantitative indicators should be interpreted carefully and in order of importance. This was the goal of the part of the study which consisted in gathering as much information as possible on the various traditional and local products in order to assess their main advantages and disadvantages. In addition, this phase of the study provided important information for the next phase which included consumers.

Consumer survey

The consumer survey showed that in the Republic of Serbia there is growing demand for quality food, concerning food produced both locally and traditionally, as well as organic food.

In the last twenty years Serbian consumers have passed through various phases, from a struggle for survival, to the opportunity to choose quality food. While in the Republic of Serbia there is increasing demand for quality food, consumer behaviour is predominantly defined by disposable income, which in 2010 amounted to approximately €350 per person per month. The proportion of food expenditure in total income is about 40%. Low purchasing power results in a low willingness to pay a higher price for quality. This confirms the finding in which consumers reported that they would first change the price of traditional and local products, and then the packaging of the products.

In terms of determining criteria for selection, it can be concluded that consumers in the Republic of Serbia pay greater attention to quality than to price. However, data on average income and food expenditure lead to the conclusion that price would be the priority decision criterion. The reason for this finding is the fact that prices of local or of high quality products of domestic origin are not very different from prices of normal products. For example, price of lamb from extensive and intensive farming was almost the same at 2.5 EUR per kg of live weight in 2010.

Moreover, it has to be underlined that attitudes towards quality and price reflected socially desirable behaviour. Probably, the answer of customers on this issue differs from their behaviour when purchasing products. Socially desirable behaviour and attitudes to quality can be substantiated by the behaviour of customers when visiting restaurants, in food preparation for guests, or in the purchase of some durable goods. By observing the behaviour of consumers in Serbia it can be seen that there are people who, for example, order great portions of food and drinks in restaurants which go beyond their needs. This is probably because they are trying to prove – to themselves in the first place, and then to others – that their social position is better than it in fact is. In cases when they are alone in the restaurant or in places where they are not well-known, and where there is no need to prove themselves, they do not take such large portions. An interesting observation is that people who take smaller portions and who leave none of the food uneaten are considered to be too parsimonious. These attitudes can be explained by the interpretation that people who take smaller portions have a poorer financial situation, which may not be necessarily the case in reality. A similar social effect is found by buying big cars, houses and apartments that are beyond the needs of customers.

Another phenomenon is cooking food for guests, where, for example, the meat for guests is always the best quality, while the meat for everyday use of the household members is of poorer quality. This can be interpreted as a desire to show a better social status than is actually the case. There is also the explanation that in this way appreciation and respect is shown to guests. Experience shows that such behaviour is more likely in poor households, and because poverty in Serbia is more pronounced in rural than in urban areas, this model of behaviour is observed more in the rural population.

In short, the attitudes of consumers to quality food in the Republic of Serbia should be interpreted with caution, and the results of this study should be interpreted as tendencies rather than as exact findings.

Demand at the level of the manufacturing industries is derived from final demand. If consumers prefer quality products, it would be expected that the manufacturing industry would ask primary producers to pay attention to quality, and that prices for primary products should be according to quality. This hypothesis was tested by using comparisons of traded volumes and prices. The basic hypothesis was that the traded volume and quality of livestock, as independent variables, have no influence on livestock prices. The results confirmed this hypothesis. The lowest value of F test was 0.327 (P>0.05). It can be concluded that the buyers of livestock behave similarly to all producers. The prices that farmers realize in the sale of livestock do not depend on sales volume and quality (F=2.349, P>0.05 (Zarić *et al*., 2010). Those findings do not support the findings in respect of quality obtained from consumer research.

It is interesting to compare the Serbian consumers in the context of consumer behaviour generally in the Region (WBCs). In terms of the behaviour of consumers in Serbia there is the consideration that lower incomes mean greater pragmatism in buying. However, in terms of hedonism there are no differences relating to income, and also in Serbia, shopping is considered an entertainment. In relation to customers from Slovenia, Croatia and Bosnia-Herzegovina, the Serbian customers have the lowest ethnocentrism. Serbian customers do not think they should give priority to Serbian products, or prefer products produced by Serbian companies. Based on this comparative analysis, it can be concluded that in the choice of high quality products in the Region, Serbian consumers are least likely to choose the national products (Žabkar *et al.,* 2009).

The influence of such behaviour on buying of high quality products of animal origin should be further explored and the complex relationships between national identity, perception of products that have no national origin, and preferences for products and brands should be tested.

The relatively low willingness to pay for higher quality products (between 20 and 40%) can be explained not only by low purchasing power, but also by the current situation in respect of food

supply. Serbian consumers do not yet have such a 'fear of food' as in developed countries, because in conventional agricultural production, a large part of production is undertaken in an organic way, but do not have the appropriate organic certificates and labelling. The use of agro-chemical agents for conventional production in Serbia is less than in developed countries, so the transition to organic production results in a smaller drop in yields for developed countries. The willingness of consumers to pay higher prices is because of the increased costs for organic production.

Finally, the Serbian market is relatively small and transparent, and information on the production practices of bigger enterprises spreads quickly by 'word of mouth', so that consumers are informed relatively quickly. What is important is the fact that customers with higher income and better education are more willing to pay a 'premium' price. This would be expected, because in understanding the importance of organic farming it is necessary to have information, to understand the potential risks, and to have sufficient money to purchase the products.

If we look at quality through the dimension of trust, the study shows that Serbian consumers believe that Serbian products have high quality. Furthermore, consumers believe that products must have proper packaging and labelling. It is interesting that consumers believe that products must have a certificate of origin and quality, which should be issued by scientific institutions (almost 50% of polled persons), followed by inspection authorities (41%). Only 9% of consumers believe that producers should be allowed to mark the product themselves or through associations. This result indicates that the scientific institutions and Government enjoy the confidence of consumers. In order to build the trust of consumers, producers need to improve communication with customers and establish functional associations and alliances in which consumers have confidence.

Conclusions and implications

In this study, attention was paid to the attitudes of consumers towards quality products of animal origin, where the local, traditional and organic products are defined as high-quality products. The results show that consumers tend to prefer quality over price, which is consistent with previous findings on this topic carried out in the Republic of Serbia.

However, official data on income and food expenditure lead to the conclusion that price is the primary decision criterion. It important to underline that the prices of high quality products of Serbian origin are similar to prices of other products.

It should also be noted that there is limited research in this domain in Serbia on which comparisons and analysis can be made. In addition, consumers tend to give socially desirable responses that may differ from their behaviour when purchasing. Confirmation of the thesis that price is a factor which is taken into account during shopping is the fact that consumers of local and traditional products would in the first place change the price.

It is important to underline that Serbian consumers allocate at least 40% of total income to food, so it can be assumed that they take into account where to make savings and reduce costs. However, the analysis shows that Serbian consumers tend to enjoy shopping more than other consumers in the Region, which opens up an opportunity for both producers and suppliers. At the same time, they have the least pronounced ethnocentrism, which puts domestic producers in a relatively disadvantageous position compared to other suppliers in the Region.

Further studies should focus on the financial ability to purchase meat quality products, as well as on the segmentation of customers according to their frequency of quality products' purchase. This would improve the validity of the results obtained in this study.

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First steps in developing an organic food supply chain in Macedonia

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Abstract

The organic farming sub-sector in Macedonia follows an industrial model of agriculture and its development is mostly based on expectations of market price premiums. The organic farming community is very small and at the beginning of a learning curve. In these circumstances supply is seen as the biggest problem in developing a market. The study involved an analysis of consumers' perceptions and needs for organic agriculture. It also focused on opportunities for developing an organic domestic market and supply chain by stakeholder analysis. Farmers and the supply chain are not yet ready for export and any potential initiative that organizes collective capacities should be welcomed. The success of any endeavour depends greatly on an increase in transparency within the organic community and the supply chain. Development of the domestic market should be given priority at this point as it has greater chance of short term success and would serve as a foundation for later accessing the export market.

Keywords: organic, potential, market, supply chain, domestic

Introduction

Organic agricultural production can be seen as a concept of farming in which all the components (soil, plants, animals) maintain a stable coexistence. Several driving forces can be identified that motivate people to initiate organic production (Zanoli *et al*., 2004). The motivation for organic production usually derives from consumers and the market. The consumer dictates how the food is supposed to be produced, processed, manipulated and sold. The products are clearly identified, certified and labelled. This could be stimulated by the state and its institutions. In the EU there are subsidies to enhance environmental safety as well as for a reduction of pollution of the surface water or the creation of areas with a particular biological diversity. Further stimulation for organic farming may be initiated by the farmers themselves. Some farmers do believe that conventional production is unsustainable so they have created alternative methods of production with the aim of improving their family's health and the economics of the farm. The products are not always sold on the market, or are sold without price differentiation and without certification. In developed countries small farmers often directly distribute non-certified organic products to consumers. The new EU countries have adopted EU legislation and have regulations for supporting and protecting organic farming. Producers from these countries can offer organic products at relatively low prices. An increasing amount of organic products is imported into Western Europe (CBI, 2005).

A set of intermediaries are used by manufacturers to make their products available for consumption (Kotler and Keller, 2006). Intermediaries smooth the flow of goods and services by providing several advantages to producers as a large number of producers lack the financial resources to carry out direct marketing, and intermediaries have many contacts and experience that enable the producers achieve more than they can achieve on their own. (Coughlan *et al.,* 2001) The analysis of the literature suggests that there is no common classification of distribution channels of organic products. Supply chains of organic products are often considered as alternative supply chains, which are shorter, more locally oriented, and in which the producers and consumers are more tightly connected to each other than those in the conventional food supply chains. However, the involvement of retailing groups in the

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organic supply chain has increased the market share of organic products in many European countries (Hamm *et al.,* 2002). According to a study in Finland (Finfood, 2003), the demand for the organic products is higher than the supply in the quality-price ratio. Therefore the organizations should have an eye on the demand and supply chain. Qualitative method of measuring used to determine the demand-supply chain of organic products. They mainly concentrate on the information management to know the performance of the business. The supply chain flow among the players in the markets is essential to find the organizational relationship (Anderson and Narus, 1990).

The main problems of the organic supply chains identified in earlier studies at European and Finnish levels are: imbalance between supply and demand, high operating costs, lack of co-operation between actors of the chain, incompatibility of values among actors of the chain, lack of information flow, and poor supply reliability (Finfood, 2003; Hamm *et al.,* 2002). Usually, organic products sell across the channels with low demand, like specialised shops for health food or directly from farm. Historically, organic food was only available in the form of raw products like grains, meat, milk, eggs, fresh fruit and vegetables and as low processed products, like dried fruit and vegetables, dried spice plants. Because the organic sector is the fastest growing food sector in the world, it is very important to develop other distribution channels as well. The structure of organic food distribution is worldwide mainly in special health food departments of big supermarkets (50%). Other important channels are specialised shops for health and organic foods (45%). The rest of organic foods are distributed by direct marketing (5%) to the catering trade such as restaurants, hospitals and hotels (Zanoli *et al.,* 2004).

The low quantity and assortment of organic food did not allow important marketing strategies to be developed for the organic sector in the Republic of Macedonia. Low domestic production, about 1-2%, mainly consisting of herbs and berries, is a limitation to the development of the organic chain in Republic of Macedonia, as well as for export (Sekovska, 2010).

This paper reports the results of a project commissioned by the Ministry of Agriculture of the Republic of Macedonia. The complete supply chain management from farm to fork and all participants in this chain, from suppliers to the consumers, were studied. The main aim of this project was to identify weaknesses in the supply chain and to detect reasons for the slow development of organic production in the country.

Materials and methods

The main aim of the project is to identify factors which determine the demand and the supply chain of organic products in Macedonia. For that purpose a survey was conducted using a semi-structured questionnaire with closed and open questions. A sample of 500 consumers in Macedonia was gathered, in which higher educated consumers were highly represented. The questionnaire was divided in three parts. The first part concerns determination questions regarding age, level of education, sex, family size and income, which categorizes the respondents. The second part contains questions in which you can choose yes or no answers in relation to what consumers really know about organic food. The third part concerns attitudes and preferences connected to organic food. The questionnaires were processed with the SPSS statistical program. For studying weaknesses of the chain, a Round Table Conference with representatives of all participants in the supply chain from farm to the fork was held, including farmers, distributors, suppliers and appropriate institutions.

Results

The results are grouped in factors concerning production, certification, distribution and buying behaviour. The outcome of the Round Table Conference is described complemented by some results of the questionnaire from a sample of consumers.

Factors of production and certification

The main advantages of organic production in the Republic of Macedonia are satisfactory crop yields, protection of nature and landscape, similar agri technical measures to conventional products and future oriented production with hope for higher prices as is common in the world market. The biggest weaknesses of organic production are expensive production compared with yield of crops, low price for organic food, too low quantity which does not allow the possibility for export, bad eating habits, low cooperation between producers and other parts of the distributive network, weak market organization and low level of education.

There are many problems along the supply chain, from the suppliers to consumers. The main problems in the production process mentioned were supply of organic fertilizers and organic crop protection materials. Another restriction is the unavailability of biological materials, which are used in organic production instead of pesticides and fertilizers. It is important to have designed a list of materials appropriate for use in organic production. To support this development it is advised that a specialized shop for organic materials and protection instruments be established.

When talking about production costs, it is evident that Macedonian farmers do not have data and information on the costs of organic production compared to conventional production. According to some farmers involved in the Round Table Conference, organic production has a 30-50% lower productivity than conventional production. Representatives of the distributional network stated that the Macedonian market can't absorb a price higher than 30% above the conventional product price. The fact that organic products in Macedonia are selling presently at the same price as conventional products, besides their lower productivity, is a strong de-motivating factor for the Macedonian organic producers.

Organic fertilizers and protection instruments are not regulated at this moment, but a rule book on organic fertilizers is in preparation. In the meantime it is very important to find a way of registering imported organic fertilizers. An additional problem is the higher price of these fertilizers and other materials. Another obstacle to organic production is the certification process and associated cost. The certification process is very complicated, expensive and takes a long time. Besides the fact that the Ministry of Agriculture pays 50% of the cost of certification, this process remains expensive for the farmers.

Distribution factors

Inappropriate sanctioning of low quality products which do appear in the market causes problems for regular producers. An example is honey made from glucoses pushing down the price of organic honey. In general, organic production is not so bad, because conventional production is facing problems, too. A main factor to be improved in the organic supply chain is the processing of organic products, and even more important is the distribution and sale of organic products. Nearly half of the questioned consumers is not sure about availability of organic products in the shops (no answer/ don't know). An additional 30% of the respondents in the survey say that there is a poor to very poor availability of domestic organic food (Figure 1).

Representatives of the distribution network indicate many challenges regarding this segment of the supply chain. The biggest challenge is to develop a good quality control system and organize a unification of the organic products on offer from the farmers' side. If consumers pay more for organic food, they should be sure of the product quality. The consumers do understand the value of organic food as indicated by the questionnaire, but the quality, the assortment of organic products and the continuity of supply are problem points. Distributors are prepared to organize a presentation and tasting of these products, but only if they have continuous supply. The organic logo is also very

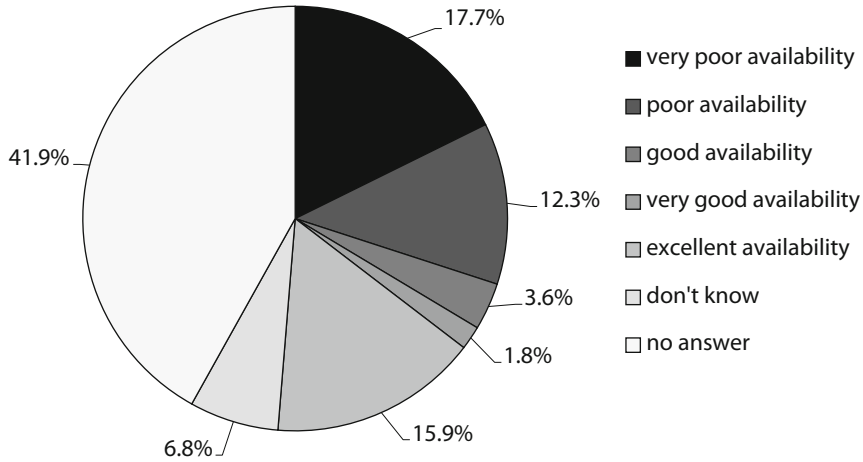

Figure 1. Availability of organic food in the shops.

important and should be known to the consumers. It is also very important to know who guarantees the quality associated with this logo. Distributors can guarantee display of the organic products, but not the packaging and certification of the product. For this reasons trust building in the chain is required.

Factors influencing buying process

The dilemma is how to differentiate organic food from the huge supermarket assortments. The Ministry of Agriculture has prepared an organic logo, so the next question to the consumers was 'Are you familiar with the organic logo'. A rather small group of consumers (18%) said that they are familiar to with the Macedonian organic logo (Figure 2), while 46% of the consumers did not know the logo. Also, quite often the questioned consumer was not sure what exactly the organic logo is ('don't know' answers), and they mix it up with the Macedonian quality logo, which symbolises the Macedonian original product.

Distributors think that farmers have unrealistic expectations regarding the price which they state should be 30% higher than for the conventional product. Distributors see problems regarding certification and fulfilment of the requirements for the sale of organic food. For establishing regular

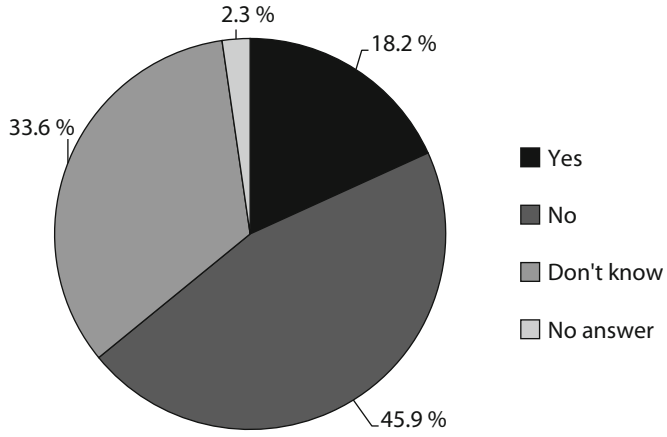

Figure 2. Are you familiar with organic food logo?

cooperation between distributors and producers, the preconditions as discussed during the Round Table Conference are: an organic products list is needed as well as their quantities and the name and logo of producers; define a way of communication directly with producers or with an association of producers; support in-store activities, such as providing educational materials and exposure of a counter for tasting during the weekends. The main precondition is the fulfilment of basic sale conditions, like appropriate packing, bar-coding and certificates. When analyzing the price factor we discovered that it is important, but not the most important factor (Figure 3).

The survey allows us to make a gradation of buying factors by their importance. Freshness of product appears to be the most important factor in the buying process, followed by price and taste, while exposition in store and packaging are less important factors. But, no matter where organic products are being sold, clear labelling and a clearly visible and understandable organic logo are essential for a successful marketing of organic products.

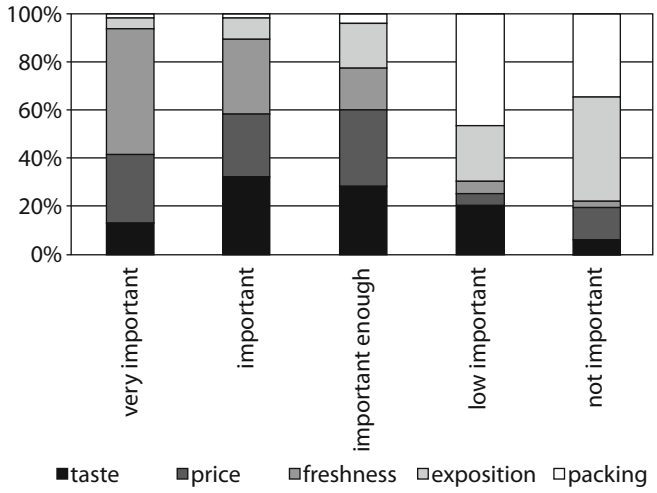

Figure 3. Which factors are most important in the buying process.

Conclusions

From the realization of this project several conclusions with regard to the 'from farm to fork process' are drawn. The general conclusion is that there are many weaknesses in the organic supply chain. There is very weak horizontal and vertical integration along the chain which results in a low volume of production. The financial support from the Ministry of Agriculture to the organic sector is the most stimulating factor. However, producers think that the financial support is not enough to compensate for the lower productivity in combination with higher cost. The strongest production motive would exist in the hope of a higher price and a desire to produce healthy food. Problems can be summarized in several fields:

- Production issues: problems with supply of organic fertilizers and other materials important for production exist, caused by poor regulations, low availability of education materials, and high prices of the inputs for organic production.
- Price issues: a calculation of production costs compared to appropriate conventional production costs will give a clear view of the existing situation.
- Distribution issues: unorganized and an uneven supply of products by the farmers is the biggest problem for the distributors.
- Promotion issues: recognition of the organic logo is very important. This is not the case at the moment. Consumers should be more informed and educated.

There are several very important open questions left unresolved like regular distribution, appropriate packaging and marketing and education of the producers. These should to be dealt with before starting a serious information campaign on promotion of organic food. Presently, the main motivation for organic food production is the financial support for organic production from the government. In the event of the government ceasing this subsidisation, producers will become de-motivated towards organic food production. An insufficiency of organic products by domestic production is a limiting factor for the use of more attractive distribution channels on a permanent basis.

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Consumption of organic food in Macedonia and Serbia: similarities and differences

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Abstract

Consumption of organic food shows an increasing trend in the world. This trend is visible in Western Balkan countries too. But who are the organic food consumers in Balkan countries and how big a percentage of the market do they cover? This study compares survey data from Macedonia and Serbia. The questionnaire used 36 questions to profile organic food consumers and their preferences and attitudes regarding organic food. The study detected the main similarities and differences between consumers of organic food in both countries. There is very little research with regard to organic food consumption in the Balkans. The results of this study shed more light on organic consumer behaviour and will give more insight into the diffusion process of organic food consumption in the two countries.

Keywords: consumer behaviour, organic food, Balkan countries

Introduction

There is a growing demand for organic foods driven by consumers' perceptions of the quality and safety of these foods and by the possible positive environmental impact of organic agricultural practices. This growth of demand is expected to continue in the coming years. Although the situation differs from one country to another in terms of type and quantities of production, in all European Union member states the number of organic farms has increased since the 1992 reform of the common agricultural policy. However, in total, just less than 2% of all agricultural area is devoted to organic farming, and no more than 1% of all agricultural holdings practice organic production (P. Hau, personal communication). Nevertheless, the organic sector is the fastest growing in the food industry. From 1995 to 2005, it grew by 15-20% per year, while the overall food industry grew by only 4-5% per year (Scialabba, 2007).

The supply and demand of organic products has grown to a higher degree than that of the traditional agricultural products. Production and consumption differ among continents. Australia and Latin America have the largest area of pastures with extensive methods of farming. The reasons behind the trend towards organic farming are the change in thinking towards health and well-being. The global organic food market was expected to reach US$ 70.2 billion by the end of 2010. Europe has the largest share of global organic food sales, followed by North America, but the organic food market in Asia-Pacific was forecast to grow at an annual rate of approx 18% during the 2008-2010 period. The factors driving the organic food market seem to be: environmental protection and animal health issues, improved taste, and better quality (Vlahović, 2004; S. Boccaletti, personal communication).

Contrary to the growing trend in Western countries, the situation in the Western Balkan countries is quite different. Organic food production in Macedonia started in 2005 with only 13 inspected organic farms. In recent years organic production in Macedonia increased to 1% of arable land with 109 inspected farms. In Serbia there is a similar situation. Unfortunately, organic food production is not mirrored by a corresponding demand from domestic consumers. In Figure 1 we can see how

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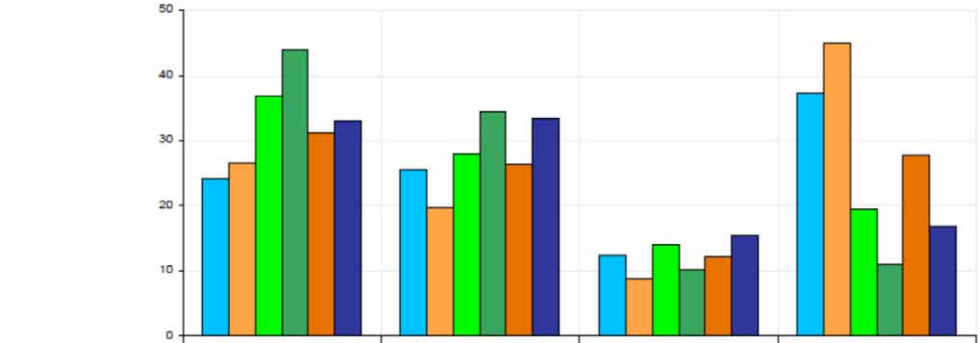

	Once a day	Once a week	Once a month	Rarely or never
Serbia	24,1	25,4	12,3	37,3
Macedonia	26,5	19,7	8,7	44,8
Montenegro	36,9	28	14	19,5
BIH	44	34,3	10,2	10,9
Croatia	31,1	26,4	12,2	27,7
Slovenia	32,9	33,4	15,5	16,7

Figure 1. Frequency (%) of purchase of organic foods in various Western Balkan countries (BIH = Bosnia and Herzegovina) (N. Renko, personal communication).

often Western Balkan consumers buy organic products (N. Renko, personal communication). We see that Serbia and Macedonia have a very high percentage of consumers who never buy organic. It indicates that the consumer needs more information and education regarding organic products. More interest for organic products seems to be in Croatia and Slovenia. The really high frequency of buying organic products in Montenegro and in Bosnia and Herzegovina is remarkable. It is questionable if the concept about organic products is the same in all these countries: what do they consider to be an organic product?

In this context, it is a challenge for research to examine the idea consumers have in mind when talking about organic products and also to study the preferences and attitudes of domestic consumers towards organic food. The goal of this study was to analyse this for Macedonia and Serbia. More information about the introduction of organic products in Macedonia is described by Sekovska and Bunevski (2012).

Materials and methods

The main aim of this project was to identify factors which determine demand for organic food products, and then compare that demand in Macedonia and in Serbia. As the research method, a semi structured questionnaire with closed and open questions was used. The sample consisted of 800 consumers, 500 from Macedonia and 300 from Serbia. The questionnaire was divided into three parts. In the first part, the questions concerned age, level of education, sex, family size and income. This made it possible to categorize the respondents. In the second part, the questions posed had 'yes' or 'no' possibilities. This ascertained what consumers really know about organic food. In the third part, their attitudes and preferences towards organic food were reviewed. The answers were analyzed with a SPSS statistical program. The sample of consumers in Serbia and Macedonia is characterised in Table 1. The different age groups and income levels have been covered rather well. However, there is a clear over representation of higher educated consumers.

Table 1. Characterisation of sample of consumers in Serbia and Macedonia by age, education and monthly income (numbers).

	Age in years				
	18-22	29-39	40-50	>50	
Serbia	111	66	58	65	
Macedonia	48	163	182	107	
	Education				
	Secondary school	College	University	MS, PhD	
Serbia	18	71	62	149	
Macedonia	16	180	119	185	
	Monthly income in Euro				
	<300	300-500	500-700	>700	No answer
Serbia	111	69	24	15	81
Macedonia	111	14	7	127	241

Results and discussion

Categorization of consumers

The awareness by consumers of organic food was measured. To the question 'Are you familiar with organic food?' 62% of Macedonian and 67% of Serbian consumers said yes. This group of consumers which is more or less familiar with organic food was asked 'do you consume organic food from time to time'. The response (yes or no) was characterised according to age group, education and income level per month. The 'yes group' is called 'organic consumers'.

Consumers under 50 years of age seemed to have more interest in organic products than older consumers (Figure 2), except for the youngest group in Macedonia, where a very low interest was noted. As this group was relatively small in number this somewhat unexpected outcome may not be reliable.

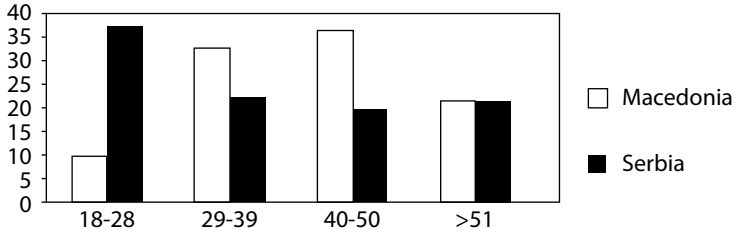

Figure 2. Percentage of organic consumers by age group (in years) in Serbia and Macedonia.

In both countries, a higher percentage of respondents were organic consumers at the higher education levels (Figure 3). This confirms the findings of the Delphi survey of Schaer *et al.* (2012), where the main characteristic of organic consumers was a high level of education. However, the level of education is expected to be of less important in the future.

Figure 4 shows the relationship between income and the use of organic products. There was a positive correlation between level of salary and awareness of organic food. However, the group with income of €500-700 is unexpectedly on top. This may have been influenced by the relatively low number of respondents in this category, influencing the results perhaps by chance.

Know-how about organic products

As said the awareness by consumers of organic food was measured by the question 'Are you familiar with organic food?' 62% of Macedonian and 67% of Serbian consumers said yes. Only 15% of Macedonians and 18% of Serbians answered 'no', while 23% Macedonians and 15% Serbian did 'not know'. It seems that Serbian consumers are more familiar with the term organic than are Macedonian consumers. But in general, consumers in both countries are quite familiar with organic as a term. However, the question still remains of how far the term 'organic' is really understood (see also Briz and Al-Hajj, 2004). Do the respondents know which products are really organic? Therefore, consumers were asked: 'are you familiar with the organic logo?' (Figure 5). It appears that about 20% of respondents in both countries are familiar with the national organic logo, while around 15% were not familiar and 65% 'did not know'. This means that consumers know something about organic as a concept and they have some impression in mind, but they do not recognize labelled organic products.

The answers to these questions show us that organic consumers in Western Balkan countries are not sufficiently informed. It is essential to have a visual connection between the organic logo and the impression regarding the organic products. The organic logo must be prominently exposed in the shop and also on the product to be recognisable for consumers.

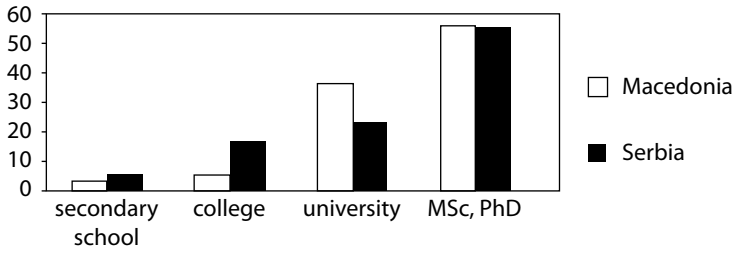

Figure 3. Percentage of organic consumers by education group in Serbia and Macedonia.

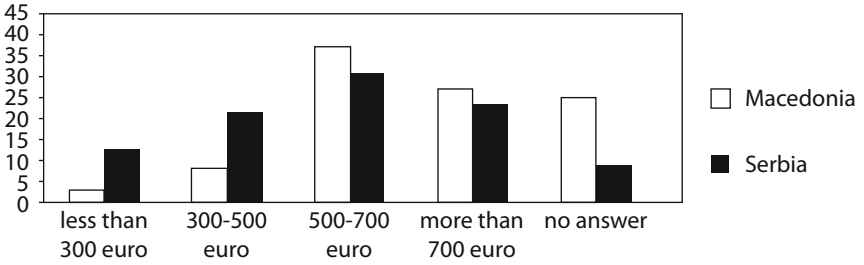

Figure 4. Percentage of organic consumers by income group (€ per month) in Serbia and Macedonia.

Figure 5. Macedonian and Serbian organic logo's.

Buying behaviour

Figure 6 shows the willingness of consumers who are familiar with organic products to pay more for them. Considering that the average salary in Macedonia and Serbia is relatively low, it is not surprising that consumers are very price sensitive and they are not prepared to pay more than 30% extra for organic compared with conventional products. When we determined the correlation between level of salary and willingness to pay more we observed that this correlation is almost proportional.

When asking about factors that are important when buying organic products, it was requested to give multiple answers each marked from 1-5. As can be seen in Figure 7, there are big differences between Macedonian and Serbian consumers in this respect. For Macedonian consumers 'freshness' is the most important factor (55% of respondents gave it the highest mark of 5) and 'price' is in second place with 'packaging' less important. For Serbian consumers 'price' is in the most important, 'taste' is second and 'freshness' is in last place.

Buying locations of Serbian and Macedonian consumers are quite different (Figure 8). The Green Market is the most visited place for buying organic products by Serbian consumers, while for Macedonian people the supermarket is the most visited place. Specialized shops for health foods are also very important for Macedonian organic consumers, while for Serbians they are almost in last place. This suggests that Serbian consumers may have a wrong understanding of the term organic. Maybe they think that organic foods consist only of fruit and vegetables.

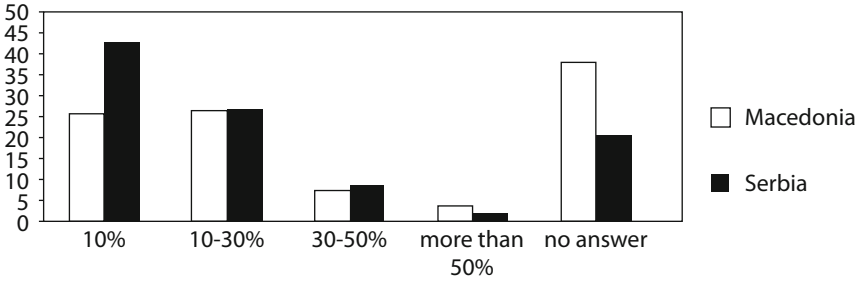

Figure 6. How much more are you prepared to pay for organic products?

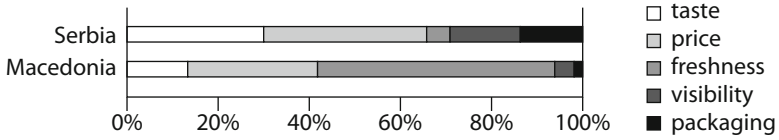

Figure 7. Which factors of product are most important to consumers in the buying process?

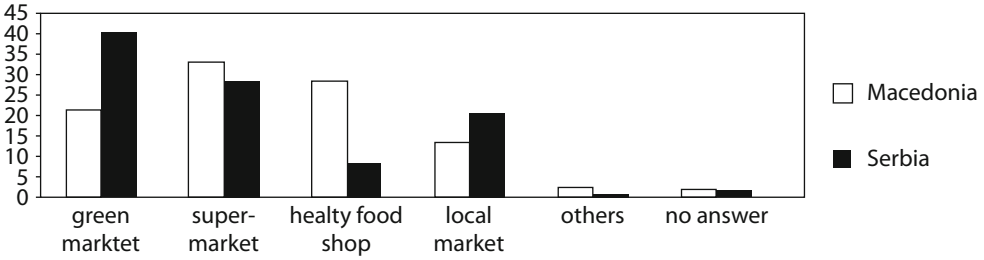

Figure 8. Where do you buy organic food?

Attitude

In the last part of the questionnaire the respondents could agree or disagree with several statements (see also Padel and Foster, 2005). Here, 72% of Macedonian consumers and 58% of Serbian consumers had a very high level of agreement (completely agreed) with the statement that 'organic products are healthy'. That 'organic products are more natural than conventional products', 30% of Macedonian consumers totally agreed, as did 49% of Serbian consumers. Furthermore, 35.5% of Macedonian consumers and 40% of Serbian consumers totally agreed that 'organic products are of higher quality'. Almost the same distribution of totally agree answers was seen for the statement 'organic products do not pollute the environment'. The respondents were not convinced that 'organic products have better taste', 'organic products have a longer shelf-life', or 'organic products look better'. However, 20-25% of consumers do think so. With negative statements like 'organic products are only fashionable', 'organic products are of poor quality' and 'organic products are poor looking', consumers have a very low level of agreement (only 5-10% totally agree). We can conclude from this that the picture for organic products is generally very positive.

Consumers were also asked to list differences between organic and conventional products. There were 5 possibilities for making this comparison: price, taste, appearance (look), certification and other (Figure 9). A very big difference in perception between consumers in Macedonia and Serbia was observed. Serbian consumers think that 'price' and 'taste' are most different between organic and conventional products. Consumers in Macedonia think that 'look' and 'certificate' are the main differences. We can conclude from this figure that consumers in both countries have rather high trust in the producers even without an organic certificate. This is a demotivating factor for those producers which produce regular certified organic food.

Conclusions

In this study 62 to 67% of consumers say that they are (somewhat) familiar with organic food. This familiarity with organic food may be positively influenced by the choice of the sample, because

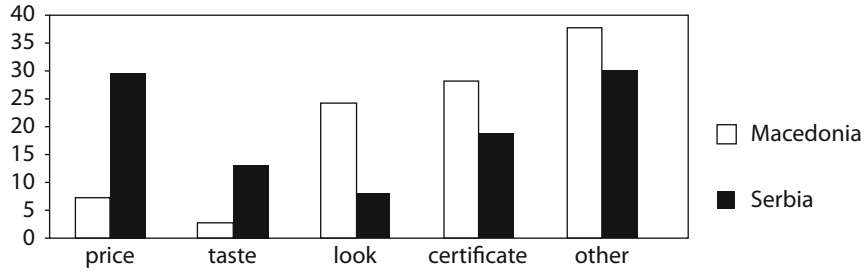

Figure 9. What are differences between organic and conventional products?

the higher educated consumer is well represented in the sample. We can conclude that the average consumer of organic products in both Macedonia and Serbia is of age 18-50 and higher university educated. They exercise on a regular basis, take care of their health, have a good monthly income of at last 40% more than average and have mostly 3 members in their families. We must realise by judging the results that the combination of higher education and higher income is rather logical because those two are without doubt correlated.

Consumers of organic food in the Republic of Macedonia and the Republic Serbia show considerable differences with regard to their buying habits, but there are more similarities than differences. Consumers in both countries have a similar average profile, which is also the average profile of the typical western organic consumer. Generally, the consumers in both countries are lowly educated and not adequately informed about organic products. Distributive channels are not well developed in both countries. The consumers are price sensitive because of low average salary and they are not prepared to pay more than 30% above the price of conventional products for organic products. This is similar for both countries.

When we consider buying locations there are many differences between countries. Serbian consumers prefer green markets much more than Macedonian consumers do. Macedonian consumers place more emphasis on quality and freshness than Serbian consumers do. Perhaps in the case of Serbian consumers their attitude to freshness is understandable as they prefer to buy in green markets. Packaging is more important for Serbian than for Macedonian consumers.

Regarding the attitudes of consumers to organic products the situation in both countries is very similar: the average consumer in both countries has a positive impression of organic food.

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Consumers' perceptions of food quality products: Greece's experiences

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Abstract

Consumer perceptions of food are based on social and personal constructs. The Greek consumer perceptions of quality food were reviewed. The Greek food sector is characterised by the proliferation of small and medium enterprises, yet a major transformation over the past decade has occurred with the evolution of large retail chains. For example, new retail warehouses – regional distribution centres, were established to support consumer demand. Then, the main traditional Greek food products certified as Protected Geographical Status/ Protected Denomination of Origin (PGIs/PDOs) are described. A distinction is made between PDOs and traditional products, as consumers often use these two terms interchangeably. In the beginning of 2012, Greece had certified 94 products as PDOs/PGIs while there were three more awaiting inclusion and seven more are already in the process of getting certification. The literature on food marketing in Greece was reviewed and five types of Greek food consumer are presented. The five types can be classed as: average consumer, innovators, ethnocentric, organic funs, highly health and quality conscious. Finally, a successful case of marketing a traditional product is presented and the marketing mix (product, price, place, promotion) that was followed is discussed.

Keywords: Greek consumer, traditional products, PDO/PGI

Introduction

The aim of this study is to review and report consumers' perceptions of food quality products in Greece. First, the Greek food sector is reviewed in order to describe and discuss the supply side of the food market. In Greece, the vast majority of food companies are small in size (i.e. more than 90% employ less than 10 employees), however there are a few multinational retailers that dominate the food chains and play a significant role in satisfying the consumer demands. Traditional Greek foods are produced by local small and medium enterprises (SMEs), however large companies have penetrated food production as well as the food market. Feta cheese is such a case. Until recently it was produced mainly by local, small-size cheese companies, but retail chains have introduced their own-label Feta cheese and have achieved a significant market share. Then, the Greek Protected Geographical Indication/ Protected Denomination of Origin (PDO/PGI) is presented and in a subsequent section the successful case of Mastiha PDO marketing is discussed (Fotopoulos *et al.,* 2010). Mastiha presents a unique case where a traditional agricultural cooperative managed to evolve into a private company capable of applying an innovative marketing mix to drive its growth. Food quality and safety are important factors that are discussed subsequently. The next section reviews the literature on food marketing in Greece and presents the results of a survey conducted in order to assess food consumer behaviour. The final section discusses the current situation and presents insights and remarks that can be useful in future research.

The Greek food sector

The structure of food sector in Greece is bipolar. Firstly, a few large retail companies dominate the market (i.e. Carrefour). Secondly, there are a significant number of small and medium-sized food firms that produce and trade their products mostly in regional markets. Specifically, in Greek food manufacturing, there were about 1,500 companies with one or more employees in 2004 (on average 7 employees per firm). Over 80% of the enterprises operating in this sector are SMEs (with less than 250 employees).

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It is worth noting that due to the economic crisis, many SMEs have gone bankrupt. The total sales of the sector were €8.87 billion in 2004. The structure of the Greek food sector is presented in Table 1.

Greek food supply chains have undergone a major transformation over the past two decades. Large retail chains dominate the market and have put their own transportation and warehousing systems in the place of regional, small-scale food chains. New warehouses and distribution centres have been built whilst there has been an increasing application of information technology to support electronic Point of Sales (ePoS). The evolution of food supply chains in the last two decades has increased the bargaining power of the retailers over manufacturers as well as producers, following a pattern that has been observed in other European Union member states (Dawson, 2004). For example, the top 10 food multiple retailers in Greece have now more than 86% of total food retail sales (ACCI, 2009).

Food quality products

In Greece, there are 94 Protected Geographical Status/ Protected Denomination of Origin (PDOs/ PGIs) and seven more are in the process of getting this certification: applications have been made for Messara (PDO), Konservolia Rovion (PDO), Sitia Lasithiou Kritis (PDO), Tomataki Santorinis (PDO), Kalamata (PDO), Xira Sika Taxiarchi (PDO), and Agoureleo Chalkidikis (PDO). The following products have their certification published: Mantarini Chiou (PGI), Fasolia – Vanilies Feneou (PGI), Kalamata (PDO), and Prasines Elies Chalkidikis (PDO). Greek traditional products and cheese products are presented in Tables 2 and 3, respectively (EU, 2012). As can be seen from the data in those tables, there is a proliferation of Greek PDO/PGIs due to the fact that there is great specialisation across many regions. As a result, the production volume of each PDO/PGI is low and consequently the production cost is high. The exception to this is Feta cheese which is produced in mainland Greece.

Food quality and safety

There are different views on food quality: that of the consumer, that of the producer/manufacturer, that of the retailer and that of the government. Food quality for the consumer is what consumers perceive to be a quality food product, including its organoleptic characteristics (taste, smell), the packaging, ease-of-use and ease-of-cooking. Under this view, quality is defined as 'the properties of a product that contribute to and satisfy the needs of the end-user' (Luning *et al.,* 2002). In other words, quality is the characteristics of products that consistently meet (or better still exceeds) end-user or customer expectations (Casabianca *et al.,* 2005). Food manufacturers and production units

Table 1. Structure of Greek food & beverages industry in 2004 (no.=1,445) (Vlachos et al*., 2008).*

Characteristic	Percentage
Number of full time employees	
0-10	5
11-50	9
51-250	68
251-1000	16
>1000	1
Sales (€)	
0.0-0.5 m	26
0.5-1.0 m	15
1.0-2.0 m	19
2.0-5.0 m	21
5.0-10.0 m	9
>10 m	17

Table 2. Traditional quality food products (EU, 2012: http://ec.europa.eu/agriculture/quality/door/list.html).

Category	Products
Cheese	Anevato PDO
	Galotyri PDO
	Graviera Agrafon PDO
	Graviera Kritis PDO
	Graviera Naxou PDO
	Kalathaki Limnou PDO
	Kasseri PDO
	Katiki Domokou PDO
	Kefalograviera PDO
	Kopanisti PDO
	Ladotyri Mytilinis PDO
	Manouri PDO
	Metsovone PDO
	Batzos PDO
	Xynomyzithra Kritis PDO
	Pichtogalo Chanion PDO
	San Michali PDO
	Feta PDO
	Sfela PDO
	Formaella Arachovas Parnassou PDO
Olive oil	Viannos Irakliou Kritis PDO
	Lygourio Asklipiiou PDO
	Vorios Mylopotamos Rethymnis Kritis PDO
	Krokees Lakonias PDO
	Petrina Lakonias PDO
	Kranidi Argolidas PDO
	Peza Irakliou Kritis PDO
	Arxanes Irakliou Kritis PDO
	Lakonia PGI
	Chania Kritis PGI
	Kefalonia PGI
	Olympia PGI
	Lesvos; Mytilini PGI
	Preveza PGI
	Rodos PGI
	Thassos PGI
	KalamataPDO
	Kolymvari Chanion Kritis PDO
	Sitia Lasithiou Kritis PDO
	Apokoronas Chanion Kritis PDO
	Samos PGI
	Zakynthos PGI
	Exeretiko partheno eleolado Thrapsano PDO
	Finiki Lakonias PDO
	Agios Mattheos Kerkyras PGI
	Exeretiko partheno eleolado ‘Trizinia’ PDO
	Exeretiko Partheno Eleolado Selino Kritis PDO

Table 2. Continued.

Category	Products
Bakery	Kritiko paximadi PGI
Fish	Avgotaracho Messolongiou PDO
Honey	Meli Elatis Menalou Vanilia PDO
Fruit, vegetables, nuts	Aktinidio Sperchiou PDO
	Kelifoto fystiki Fthiotidas PDO
	Koum kouat Kerkyras PGI
	Xera syka Kymis PDO
	Mila Zagoras Piliou PDO
	Tsakoniki Melitzana Leonidiou PDO
	Fystiki Megaron PDO
	Fystiki Eginas PDO
	Syka Vavronas Markopoulou Messongion PGI
	Portokalia Maleme Chanion Kritis PDO
	Kerassia Tragana RodochoriouPDO
	Mila Delicious Pilafa Tripoleos PDO
	Rodakina Naoussas PDO
	Fassolia Gigantes Elefantes Kato Nevrokopiou PGI
	Fassolia kina Messosperma Kato Nevrokopiou PGI
	Fassolia Gigantes Elefantes Prespon Florinas PGI
	Fassolia (plake megalosperma) Prespon Florinas PGI
	Korinthiaki Stafida Vostitsa PDO
	Patata Kato Nevrokopiou PGI
	Aktinidio Pierias PGI
	Milo Kastorias PGI
	Fassolia Gigantes-Elefantes Kastorias PGI
	Stafida Zakynthou PDO
	Fava Santorinis
Olives	Konservolia Amfissis PDO
	Elia Kalamatas PDO
	Konservolia Artas PGI
	Konservolia Atalantis PDO
	Konservolia Rovion PDO
	Konservolia Stylidas PDO
	Throumpa Thassou PDO
	Throumpa Chiou PDO
	Throumpa Ampadias Rethymnis Kritis PDO
	Konservolia Piliou Volou PDO
Gums	Tsikla Chiou PDO
	Masticha Chiou PDO
Other	Krokos Kozanis PDO
Essential oils	Mastichelaio Chiou PDO

Table 3. Traditional cheese (PDOs) quality products (extracts from EU PDO database) (EU, 2012).

Products	Description	Area
Anevato	Soft cheese from goat or sheep milk or both.	Grevena & Boio Kozanis
Galotyri	A soft table cheese with a creamy texture produced traditionally from sheep milk or goat milk or from a mixture of the two.	Epirus and Thessaly
Graviera Agrafon	A hard table cheese produced traditionally and exclusively from sheep milk or from a mixture of sheep milk and goat milk.	The Agrafon area of the Karditsa prefecture
Graviera Kritis	A hard table cheese with a firm elastic texture and perforations. The cheese is produced traditionally from sheep milk or from a mixture of sheep milk and goat milk.	Crete – The prefectures of Hania, Rethymnos, Iraklion, and Lasithio
Graviera Naxou	A hard table cheese produced from cow milk or from a mixture of cow with sheep and goat milk with either or the latter not exceeding 20% of total cheese weight.	Island of Naxos, Cyclades
Kalathaki Limnou	A soft cheese produced traditionally from sheep milk or from a mixture of sheep milk and goat milk and ripened and stored in brine.	The island of Lymnos, North Aegean Sea
Kasseri	A semi-hard cheese produced traditionally from sheep milk or from a mixture of sheep milk and goat milk.	Macedonia, Thessaly and the prefectures of Xanthi and Lesvos
Katiki Domokou	A curd cheese, white in colour and creamy in texture, produced traditionally from goat milk or from a mixture of goat milk and sheep milk.	The Domikou area of the Othrys mountain range
Kefalograviera	A hard table cheese produced traditionally from sheep milk or from a mixture of sheep milk and goat milk.	Western Macedonia, Epirus and the prefectures of Etoloâkarnania and Evrytania
Kopanisti	A soft, salty cheese, with a creamy texture and tangy flavour, produced traditionally from cow milk, sheep milk or goat milk or from a mixture of those milks.	The Cyclades prefecture
Ladotyri Mytilinis	A hard table cheese produced traditionally from sheep milk or from a mixture of sheep milk and goat milk. The production of this esteemed local Lesvos cheese, which is stored in olive oil, dates back to ancient times. The cheese is made using traditional technology and ripened in installations within the defined geographical area. Nowadays, the cheese, after ripening and drying, is stored in olive oil or paraffin.	The island of Lesvos
Manouri	A whey cheese produced traditionally from the whey of sheep milk or goat milk, or from the whey of a mixture of those two milks, to which sheep or goat milk or cream is added. The cheese is esteemed for its exceptional health-giving characteristics.	Central and Western Macedonia, Thessaly

Table 3. Continued.

Products	Description	Area
Metsovone	A semi-hard to hard smoked table cheese with a light salty and tangy flavour produced in the traditional manner from cow milk or from a mixture of cow milk and sheep milk or goat milk (with up to 20% of sheep milk or goat milk).	The Metsovo province of the loannina prefecture
Batzos	A semi-hard to hard cheese which is produced traditionally from sheep milk or goat milk or from a mixture of the two and ripened and stored in brine.	Thessaly, Western and Central Macedonia
Xynomyzithra Kritis	A soft whey cheese with a sharp to sweetish taste and a granular to creamy texture which is produced traditionally from sheep milk or goat milk or from a mixture of the two.	The island of Crete (Hania, Rethymnos, Iraklio and Lasithio)
Xygalo Siteias	Xygalo Siteias is a product of milk acidification. It is white, pasty and/or granular in texture and skinless. It tastes fresh, sourish, slightly salty and has a pleasant characteristic aroma. It has a maximum moisture content of 75% and a maximum salt content of 1.5%, whilst its fat in dry matter ranges from 33% to 46% and it has a minimum protein content of 31.5%.	district of Siteia in the Prefecture of Lassithi in Crete
Pichtogalo Chanion	A soft table cheese with a creamy texture produced traditionally from goat milk or sheep milk or from a mixture of the two.	Chania prefecture in Crete
San Michali	The milk used for the cheese comes from cows kept on the island of Syros. The animals are totally adapted to the environment and their diet is based on the available flora.	The island of Syros in the Cyclades prefecture
Feta	A white table cheese which is stored in brine and produced, using traditional methods, exclusively from sheep milk, or from a mixture of sheep milk and goat milk with the latter not exceeding 30% of the milk net weight.	Macedonia, Thrace, Thessaly, Central Mainland Greece, the Peloponnese, Lesbos prefecture
Sfela	A semi-hard cheese which is matured and stored in brine. The cheese is produced traditionally from sheep milk or goat milk or from a mixture of the two.	The Messinia and Lakonia prefectures in the southern Peloponnese
Formaella Arachovas Parnassou	À traditionally-produced semi-hard cheese made exclusively from sheep milk or goat milk or from a mixture of the two.	The Arachova Parnassou area of the prefecture of Boeotia

typically are concerned for food safety and employ governmental standards such as (Hazard Analysis Critical Control Points (HACCP). Retailers can apply their own quality standards such as in the case of BRC (British Retail Consortium) in order to safeguard the highest quality standards. To provide further definition, some experts distinguish between intrinsic and extrinsic quality attributes (i.e. Banović *et al.,* 2009). The former refers to the characteristics of the product itself and includes for instance, safety, healthiness, sensory traits (e.g. tenderness, flavour, juiciness, overall acceptability) and convenience. The latter refers to product-associated traits such as:

1. animal welfare, carbon footprint; and
2. marketing characteristics such as price, brand name, place of origin, and labelling (Grunert *et al.,* 2004; 2011; Luning *et al.,* 2002).

Thus, for example, beef quality will be considered as a convergence between end users' wishes and needs on the one hand and the quality attributes of fresh beef and beef products on the other hand (Hocquette *et al.,* 2005).

In a recent study of the Greek food sector, companies reported that problems with food quality and safety can come from any logistical activity. Transportation is the most likely cause of food safety problems due to the complexity and uncertainty of activities (35.1%). Warehousing can be also a problem especially when temperature and humidity are not adequately controlled (26%), and packaging (13.5%) is also a problem.

According to the data in Table 4, logistic functions play a significant role in food quality and safety. Warehouse technology (68%), transportation equipment (82%) and days to sell inventory (74%) were reported as having a high impact on food quality and safety.

Table 4. Association of logistics with food quality and safety.

	Impact on food quality and safety (%)			
Logistics functions	None	Low	Moderate	High
Warehousing				
Number of distribution centres	26	29	11	34
Size of central warehouse	19	14	14	54
Technology	3	3	26	68
Warehouse cost	32	19	19	30
Transportation				
Inbound logistics	5	29	24	42
Destination from marketplace	16	16	32	37
Size of distribution	11	16	16	57
Lead time	3	19	24	55
Number of distribution centres	19	19	19	43
Equipment transportation	0	8	11	82
Number of products	19	24	35	22
Number of pickup times	0	13	18	68
Delivery frequency	18	8	16	58
Delivery timeliness	16	8	18	58
Inventory				
Raw material quality	0	3	5	92
Inventory quantity	18	8	34	40
Days to sell inventory	3	8	16	74
Number of suppliers	18	24	21	37
Quality control	0	3	0	97
Other factors				
Marketing	3	8	8	81
IT applications	11	24	22	43
Expiration day	3	8	11	79
Retail price	22	11	30	38

The Greek food consumer: review of studies on Greek food consumption

There are several studies in Greece regarding the behaviour of Greek food consumers. Van Kleef *et al.* (2007) examined the underlying psychological factors influencing consumer evaluations of food risk management quality as well as the extent to which the influence of these factors is country-specific. Other than Greece, countries that were also studied included Denmark, Germany, Slovenia and the United Kingdom. Van Kleef *et al.* (2007) found that there are common factors underling the perceptions of effective food risk management in all the countries studied, such as *proactive consumer protection*, which was positively related to consumers' evaluation of food risk management quality, and *expertise* of food risk managers. On the other hand, *trust* in the honesty of food risk managers was not found to have a significant effect on food risk management quality. Kalogeras *et al.* (unpublished) evaluated consumer risk attitudes towards, and risk perceptions of, harmed products (beef due to bovine spongiform encephalopathy (BSE), chicken due to avian flu) across different countries in which different contingent market conditions occur, in order quantify how consumer attitudes and perceptions affect the consumption of the harmed products within different crisis phases. In the pre-crisis phase, risk attitude focused on product elimination and recalls while risk perception was influenced by communication strategies. In the post-crisis phase, risk attitude focused on partial product elimination and recall strategies while risk perception was influenced by investing less in communication strategies. The relative importance of risk attitude, risk perception, and the combined effect changed during crisis phases for different segments of the population, being lower in the pre-and post-crisis phases.

Chrysochou *et al.* (2012) researched Greek wine consumption and found that the most important attributes were price, quality and convenience packaging, whereas brand, grape variety and origin were the least important ones. In relation to structure, the Greek cask wine market was found to consist of four distinct segments that were labelled as Connoisseurs, Convenience Seekers, Experienced and Risk Averse. These segments showed differences in relation to their past experience and in the importance given to intrinsic (quality, taste, origin) as opposed to extrinsic cues (brand, price, convenience packaging). Kotseridis *et al.* (unpublished) examined the importance of heuristics cues on consumers' wine choice and classified them into extrinsic (e.g. brand, price, region variety, vintage, label) and intrinsic cues (taste, colour, etc) in maintaining brand loyalty and increasing chance of repeat purchase.

Some studies compared the consumer behaviour towards two or more food products. Arvanitoyannis *et al.* (2004) evaluated the Greek consumers' attitude towards wild and farmed fish in order to understand and satisfy market needs. The results mainly indicated that fish consumption pattern is age-dependent with elder consumers preferring fish more often than youth. In addition, four consumer clusters were identified (price-sensitive, mature-households, elderly – heavy users, and youth – occasional users), with clear-cut socio-demographic profiles. Arvanitoyannis *et al.* (2004) found that in general, Greeks, prefer fresh, marine, wild fish over cultivated fish. On the other hand, despite its lower preference, farmed fish is often purchased as an alternative to wild fish. A prejudice against aquaculture fish seems to exist among Greek consumers, who admit to be unaware of the requirements regarding aquaculture fish welfare, packaging and distribution conditions (60.7%) while about 50% of Greeks are unable to distinguish an aquaculture fish from a wild fish, either pre or at consumption. Costa-Font and Gil (2009) examined the consumer acceptance of genetically modified (GM) food in Mediterranean Europe, using Structured Equation Modelling, and found that public attitudes toward GM food are being formed from a reasoning mechanism that departs from trust in science and in public authorities. Further, Costa-Font and Gil (2009) also found marked differences in the reasoning mechanism that lead to the acceptance of GM food in the three countries examined, suggesting different food communication strategies for each culture. In all countries, perceived risks were underpinning attitudes and purchase intentions towards GM food. However, its influence was either in a direct or indirect way since results indicate for all countries that perceived risks have an

important negative influence on perceived benefits. In Greece, the perceived risks were the prevailing factor explaining attitudes.

Garcia-Vazquez *et al.* (2011) examined the topic of food mislabelling and its association with trading and consumer choice. They also conducted a DNA analysis of hake products commercialized in southern European (Spanish and Greek) market chains that demonstrated more than 30% mislabelling, well above the expected figure, on the basis of species substitution. Tails and fillets were more mislabelled than other products, such as slices and whole pieces. African species were substitute species for products labelled as American and European species, which indicates a deliberate economically profitable mislabelling as market prices of European and American hake products are higher than those of African hake in Spanish market chains. Chaniotakis *et al.* (2010) examined the factors affecting consumers' intentions to buy an own-label premium food product, particularly olive oil. They found that consumers' purchase intentions were directly affected by consumers' attitudes towards own-label olive oil, which in turn were influenced by consumers' perceived benefits, economic situation, brand loyalty and trust. Moreover, the level of income had a direct negative impact on both consumer attitudes and purchase intention.

There were also studies that examined the food consumer behaviour in European countries including Greece. Verbeke *et al.* (2010) reported consumer research components of Q-PorkChains (an EU Sixth Framework Programme integrated project concerning meat, which included Greece). Q-PorkChains conducted a large-scale, web-based, consumer survey in January 2008 in Belgium, Denmark, Germany, Greece and Poland. Consumers consider meat to be a healthy and important component of the diet. Consumers also support technologies that guarantee eating quality, yet they do not tolerate manipulation and lack of naturalness in the production and processing of beef products. Consumer behaviour differed based on the frequency and variety of pork consumption. Barda and Sardianou (2010) aimed to compose the profile of active consumers in Greece during a period of rising prices taking into account shifts in their consumption pattern. Results suggested that high-income groups spend more for food commodities and are less likely to be active consumers, indicating that consumers have reduced spending for some basic and semi-luxury products like fruits, meat, alcohol, sweets, coffee and entertainment activities. Barda and Sardianou (2010) found that the main factor which affected the reaction to price increases, as expected, was income. Further, women who research the market before purchasing a product are more likely than men to participate in economic boycotts. Ness *et al.* (2010) examined European consumers' behavioural intentions towards food purchase for four food products in six countries, including Greece. They described the contribution of satisfaction, perceived value and perceived quality to improving behavioural intentions and how these constructs could contribute to the improved effectiveness of marketing conventional, quality low-input and organic foods to existing and potential consumers.

A survey of Greek PDO consumers

At the beginning of 2010, Greek consumer behaviour was surveyed by questionnaire using a sample of 1,160 consumers. The findings indicated 5 types of consumers. Companies can adjust their strategies to meet the demands of each consumer profile accordingly. This typology of Greek consumers was based to what Krystallis *et al*. (2009) had found in a relevant study.

The typical consumer in Greece is represented by the largest cluster, which can be termed the 'average consumer' potentially health and quality conscious. This cluster's socio-demographic characteristics, behavioural characteristics, and awareness level of the quality schemes under investigation are closer to the sample average than for any other cluster. The same can be said about the fact that one in three common consumers purchase olive oil directly from producers, a percentage equal to the national average. In terms of quality food, the common consumer does not seem to have a strong preference for any of the quality attributes. Moreover, the average consumer tends to have a low

overall knowledge of traditional products, which indicates that the involvement and stated positive attitude is theoretical rather than an indication of a thorough search process. On the other hand, the importance attached to country of origin and health information is high enough to demonstrate a possible existence of an underlying quality and health consciousness (Chrysochou *et al.,* 2012).

In contrast, consumers who can be described as 'innovators', are well educated consumers, of both genders intolerant towards traditional products. These consumers seem familiar with the food choice process, given that they exhibit the highest food purchase frequency and expenditure, despite small family size. They claim to be quality experts. Their attitudes seem to indicate a thorough search process, since none of them agree quality foods are consumed out of habit. Moreover, they are especially well educated and exhibit the highest awareness of labelling and quality certification schemes (PDO/PGI). Innovators do not easily believe that traditional and natural characteristics of quality products are valid, an attitude that is easily adopted by all consumers in other clusters. Further, they seek value-for-money prices.

Two consumer groups are associated with two types of female consumers. The first may be described as the 'ethnocentric', middle-aged, lowly educated, working mothers and the other as the 'organic funs', older, lowly educated, wealthy, housewife and mother. Of those who buy quality products, they purchase in large quantities and generally spend a significant proportion of their income on food, perhaps due to the large size of their families. The main difference between these two groups is that they comprise women of different generations. This reflects one of the major social changes in Greece during the last two decades. The working women, possibly due to their low education and income levels, exhibit a rather simplistic attitude towards traditional food, whose only important attribute seems to be its Greek origin. The profile of the housewives brings to mind the typical older Greek mother, whose main interest has been her family's welfare.

Finally, the last type can be termed the 'highly health and quality conscious', young, educated, wealthy consumers of both sexes. Almost half of this cluster's members are non-married, reflected in the lower average family size. It is the cluster that satisfies more than any other the hypothesis of the existence of a health and quality conscious consumer group.

A case study of a successful marketing of a traditional product: Mastiha

Mastiha is a unique natural product exclusively cultivated in the Greek island of Chios. It is a resin of *Pistacia lentiscus*, var. Chia, trees found in the southern part of the Island. Mastiha Chiou is a unique product and its market is a monopoly, thus it was not difficult to be certified as a PDO. The same is true for products derived from Mastiha, such as: Tsikla Chiou (a chewing gum with Mastiha being one of many ingredients) and Mastihelaio Chiou (an essential oil distilled from the less clean granules of Mastiha). All mastiha products possess biochemical characteristics that can positively affect human health (Triantafyllou *et al.,* 2007).

Chios Mastiha Growers Association (*CMGA*, or *the Association*), is a best practice example of transforming a regional, product-oriented agricultural cooperative into a global, market-oriented food company (Fotopoulos *et al.,* 2010). A turning point in the history of the Association was the establishment of an affiliated retailing company called Mediterra SA in 2000. Although the Association owns the majority of Mediterra SA capital, an independent management team created a new vision and strategy. A number of key factors were combined to create a successful case of building a strong brand image and accumulating above-average growth rates (I.N. Katsikis, personal communication).

Mastiha is one of the 94 PDO/PGI Greek products and its marketing faces many similarities to the marketing of other PDO/PGI products. Until 2000, the operation of the Association was characterized

by an absence of marketing strategies. One of the main objectives of the re-organization was to bring knowledge of what marketing is and how it could help the Association's business. Thereafter, marketing management aimed to create a strong brand image. Mediterra's S.A. main target group was the nutritionally concerned consumers and the consumers willing to try new tastes. At the same time the number of Mastiha products (mainly value added products) increased and retailing stores were created (Mastiha shop). In contrast to the vast majority of Greek PDO/PGI products, the new company – Mediterra – successfully marketed Mastiha PDO products and developed a high growth impetus. This change from production-orientation to market-orientation would not have been possible without the establishment of Mediterra to host and develop the new marketing strategy (Harris and Ogbonna, 1999).

The Association also penetrated the functional foods market (by launching products with health claims) and also pharmacy retailing stores. Big emphasis was (and is still) given to public relations mainly by participating in rural and agricultural developmental programs that could support the Association financially. The Association was also able to get most of its promotional campaign subsidised by the Hellenic Foreign Trade Board from 2000 to 2006.

Mediterra applied a specific marketing mix (called the 4Ps-Product-Price-Place-Promotion) in order to drive sales to higher levels. Specifically, referring to traditional products, the Association used to offer no more than two products: Mastiha and ELMA (gum based on Mastiha). Nowadays, there is a wide spectrum of products: Mastiha Chiou, ELMA gum, Mastiha shop, mastiha therapy which includes para-pharmaceutical products, Cultura Mediterra, which are products without Mastiha that focus on the Mediterranean diet, nutrition supplements, products for oral hygiene, soaps, cosmetics, bakery products, snacks, sauces, pasta, pate, chocolates, sweets, drinks and beverages. Most of the above products were developed under a new product development process aimed to position Mastiha products, relating them to specific health claims.

Regarding distribution (place in 4Ps terminology), an innovation was introduced, namely Mastiha shops. In doing so, the distribution of Mastiha and its products was divided and Mediterra followed a different distribution strategy than the Association of Growers. The Internet is also a significant channel for business-to-consumer sales (http://www.mastihashop.com).

In respect of promotion, there was overtly no promotion of Mastiha prior to the radical transformation to the new business organization. With the new scheme, and the new marketing management, promotion was given special attention. A promotion mix was developed and included many outlets and promotion means such as outdoor, radio, television, magazine advertising, in-store promotions and more. However, there is still a need to build brand loyalty of Mastiha products.

Regarding price, the situation is more complex as producers are directly involved in this because producer price is related to market price. Therefore, producers have an interest in higher market price. However, this may jeopardise development of the company as profits could be invested instead of distributing them as shares to producers. Mastiha products, especially those sold in airports and other Mastiha shops are relatively expensive, with a premium value.

Discussion and conclusions

The purpose of this study was to develop an understanding of the marketing of food products in Greece as well as shed light on consumer perceptions of food, food quality and traditional food products. Although the research findings presented here are tentative in nature, they do support the notion that consumers perceive and value specific food qualities

This suggests that attaching specific cues to foods and communicating them to consumers would be an appropriate tool for adding value to such foods, a finding particularly helpful for small and medium enterprises that produce local, traditional food. Marketing techniques are critical in creating and sustaining brand loyalty via enhancing the attractiveness of quality foods. Mastiha growers practiced these techniques and successfully managed to create a market for their new developed products.

Food companies need to consider the symbolism attached to the product. An understanding of consumer groups (average consumer, innovators, ethnocentric, organic funs, highly health and quality conscious) would be a sound basis on which to develop an appropriate marketing mix. For example, the place in which the product is purchased or consumed needs to be considered for different types of consumers. High health and quality conscious consumers prefer small, specialized outlets to big retail chains, which are associated with mass food production. Currently, there is a severe economic crisis in Greece which is expected to cause shrinkage of the market, yet the consumer types are not expected to change. However, it is expected that the percentages of the different of consumer types will change. For example, it is likely that less people will remain as organic funs in an economic crisis while more will turn to average consumption.

Future research may shed light on more segments of Greek food consumers using value as a variable to distinguish consumers. Also, consumer behaviour should be studied in a longer time frame and compared against other countries and regions.

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Quality and safety of products of animal origin and consumers attitudes: Cyprus perspective

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Abstract

Cyprus is an island in the South-East Mediterranean Sea, at the crossroads of three continents, Asia, Africa and Europe. Throughout its history, different civilizations dominated the island, leaving their marks on the culture, food and peoples' habits. To this day, a vast variety of traditional products comprise common ingredients of the Cypriots' diet. Cyprus-produced traditional products include *zalatina* (ready-to-eat pork meat cuts in fat), *loukanika* (wine sausages), *tsamarella* (dried goat meat), *lountza* (matured in wine or/and by smoking procedure pork fillet), *halloumi* (type of cheese) and *anari* (type of cheese). In total, 1,058,740 animals (pigs, sheep, goats, bovines) are slaughtered each year to meet the demands of a human population of 796,900. This highlights the high consumption of meat in Cyprus. In 2004, Cyprus joined the EU therefore adopting and complying with the relevant EU legislation. As a result, for the production of food, the use of methods that were not in accordance with the provisions of EU legislation was terminated. Public announcements were made for consumers and scientific advice was provided to the producers while implementing the EU standards, enabling consumers to become more aware and better informed on the importance of food safety and quality. Official controls became systematic and strict, in order to meet the consumers' expectations on the quality and safety of food. Inspections, sampling and reports were rearranged accordingly, and a new evaluation and control system which ensures public health and promotes the production of a variety of products was developed. The consumers can now choose from an array of local traditional products with assured quality and safety. One of the missions of the Veterinary Services of Cyprus is to foster excellence in the evaluation and supervision of the quality and safety of products of animal origin for the benefit of public health. This also pertains to the production of traditional products which are an integral part of the Cypriot cuisine and culture.

Keywords: quality and safety, customer approach, traditional products, competent authority

Introduction

Nowadays, food safety and quality are receiving more attention than ever from competent authorities, markets, the food industry and consumers. For public health, safety has become an essential element of official controls by authorities due to serious and fatal food poisoning cases. For markets and the food industry, safety and quality receive attention due to competitiveness and a commercial advantage in fulfilling safety and quality requirements. For most consumers in the USA and Europe, safety has become one of the most important attributes of food (Magkos *et al*., 2006). Likewise, observing Cypriot consumers, they believe that safety and quality are equally important and influence their attitude of consumption. Cypriot consumers support traditional products that are produced by traditional practices to preserve the customs and manners of the island. Cypriots' beliefs are associated with quality and safety as 'pure' or 'natural' products such as produced without genetically modified (GM) technology. A large group of consumers in Cyprus are concerned primarily with food safety issues and they make purchasing decisions on a combination of ethical issues and healthy eating. For instance, there is a widespread belief in Cyprus that traditional food is significantly healthier and safer than conventional food, which is expressed by the fact that consumers prefer purchasing traditional products. It is very common in Cyprus that restaurants catering for local people are the ones which serve good quality food.

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History of Cyprus cuisine

Cyprus is an island in the South-East Mediterranean Sea, at the crossroads of three continents, Asia, Africa and Europe. Throughout history, different civilizations have conquered the island. Starting from Eteo-Cypriots, the earliest inhabitants came to the island before 7,000 BC, a lot of conquerors followed. After the 'hellenization' of the island by the Mycene civilization, Romans, Byzantines, Crusaders, Venetians, Ottomans and English followed, until the island achieved its independence in 1960. All these civilizations left their marks on the culture, food and people's habits. Until to-day, a vast variety of traditional products comprises the common ingredients of the Cypriots' diet. On the whole island, there are 885,600 inhabitants and 796,000 in the government controlled area. Of the total population, 75.5% are Greek-Cypriots, 10% are Turkish-Cypriots and 14.5% are foreign residents. Among these, there are various religious groups which belong to the Greek Cypriot community: 0.3% of the whole population is Armenian, 0.5% is Maronite and 0.1% is Latin. These mixes of ethnic and religious groups in combination with the various civilizations who have passed from the island have delivered the Cypriots' diet of today.

The Cyprus diet is a Mediterranean diet where olive oil is the main source of fat and a lot of legumes, fresh fruits and vegetables are included. However, the modern western cuisine has recently influenced the Cyprus diet and consumers nowadays seek out organic foods, processed 'luxury foods', nutrient and 'bioactive' supplements, exotic food from outside the EU, prescribed or self-prescribed foods, eating out and takeaways (Violaris *et al*., 2008). Still, consumers in Cyprus consider safety a part of the quality of food, thus quality ensures their health. The manners and customs of Cyprus reflect the quality of the food that is served.

Furthermore, Cypriots retain their manners and customs related to the consumption of traditional products, such as Cypriot sausages, *lountza* (matured in wine or/and by smoking procedure pork fillet)*, seftalies* (minced pork meat mixed with herbs and spices, rapped in omentum) and *halloumi* cheese. They support traditional products produced by traditional practices to preserve the customs and manners of the island. Consequently, an increasing number of establishments producing traditional products have come into operation and have been approved by competent authorities. Most of them are located in the villages and they are using traditional methods for the production of traditional products.

At first glance, ethical issues and consumers attitudes seem natural allies. Local or regional production, fair trade and animal welfare are widely perceived as being more ethical than industrialised production, and traditional products are promoted as being more morally acceptable than non-traditional products. Cypriots' beliefs are associated with quality and safety as 'pure' or 'natural'. A large group of ethically conscious consumers in Cyprus are concerned primarily with food safety issues and they make purchasing decisions on a combination of ethical issues and healthy eating.

Traditional products

The technological know-how for preparing traditional products is linked to the Mediterranean climate of Cyprus. The wet winters and hot and dry summers contribute to the production of traditional products. For instance, dry smoking of meat products (e.g. *chiromeri* (Figure 1)*, lounzta*) operate as a natural preservative and extend the shelf-life of the product. The production of traditional products is mainly in the villages located in the mountains of Cyprus due to the fact that low temperature and dry weather preserve the products and extend their shelf life. Consequently, production processes have been developed based on the climate of Cyprus. Another example of traditional know-how is the production of *halloumi* cheese, where the raw milk is subjected to heat treatment at 90 °C (Mantis, 1993). *Halloumi* cheese is produced throughout all districts of Cyprus. A high temperature is reached especially during the summer time. It was essential to the local people to develop a way

Figure 1. Preparation of chiromeri *by smoking procedure in traditional oven.*

of production so that *hallouni* cheese could be produced and preserved during the whole year. The high temperature treatment during summer requires intensive heating. From a technological point of view, *halloumi* is the only cheese in the world in which the curd after draining and cutting is heated in whey at a temperature of 85-90 °C for 30 minutes. The result is a product that is safe to consume because high heating eliminates dangerous pathogens (Mantis, 1993). In summary, climate and the traditional know-how that exist in different regions of Cyprus have a decisive influence on product quality and safety in products such as wine sausages and *halloumi* cheese.

In Cyprus traditional meat preparation is practised and traditional meat products are produced. Meat preparation means working with fresh meat, including meat that has been reduced to fragments, which has had foodstuffs, seasonings or additives added to it or which has undergone processes insufficient to modify the internal muscle fibre structure of the meat and thus to eliminate the characteristics of fresh meat (EC Regulation No 853/2004, 2011). Typical local meat preparations are *sieftalies* (Figure 2) and

*Figure 2. Meat preparations (*sieftalies*).*

gyros. *Sieftalies* are made mainly from minced pork meat, omentum, onion, parsley, cinnamon, salt and pepper. Sieftalies are like meat balls rapped in omentum and consumed as grilled. *Gyros* is made from beef or chicken minced meat, herbs, salt, pepper and consumed as cooked. Another example of meat preparation is hamburgers. Meat products refer to processed products, resulting from the processing of meat or from the further processing such that the cut surface shows that the product no longer has the characteristics of fresh meat (Regulation (EC) No 853/2004, 2011). Examples of meat products are sausages or local meat products like *loukanika* and *chiromeri.*

Renowned meat products and their manufacture are as follows:

- *Tsamarella* is made from goat meat, salt and oreguano (Figure 3);
- *Lountza* is made from pork fillet matured in wine, smoked or non-smoked depending on the region of production (Figure 3);
- *Pastourmas* which are spicy sausages are made from beef meat, garlic and herbs;
- *Loukanika* are wine sausages, smoked or non-smoked depending on the region of production (Figure 4);
- *Zalatina* are ready to eat portions of pork meat and by-products with fat, citron juice and herbs;
- *Chiromeri* is pork leg fillet matured in wine and smoked with a dry smoking procedure.

Figure 3. Meat products (production of tsamarella *at the left, slices of* lountza *at the right).*

Figure 4. Production of loukanika *(stuffing of loukanika in wine, before their filling).*

Renowned traditional dairy products are:

- *Halloumi* cheese which is heated to 85-90 °C for 30 min and preserved in brine (Mantis, 1993);
- *Anari* cheese is heated in whey to 80-85 °C and consumed as dry or soft cheese (Mantis, 1993);
- cheese of *Paphos* is a semi soft cheese made from sheep and goat milk;
- *Flaouna* cheese is a soft cheese, made from sheep and goat milk and consumed during the Easter period;
- *Trachanas* is made from sheep milk, goat milk (or mixed goat and sheep milk), wheat and salt, and is consumed as cooked in the form of soup with small pieces of halloumi cheese that are cooked with the trachana (Figure 5) (Economides, 2004).

Figure 5. Dairy products (various kinds of cheeses at the left, trachanas *at the right).*

Quality assurance and inspection in animal production

In May 2004, Cyprus joined the EU and food establishments commenced the adoption of EU legal requirements. In 2006, Veterinary Services of Ministry of Agriculture, Natural Resources and Environment adopted the New Hygiene Package and enforced EU requirements in all of the existing establishments. The market competition has increased and legal requirements have set out a framework of standards to be followed by member states. The majority of food business operators (FBOs) have succeeded in upgrading their establishments. This achievement was due to the willingness of Cypriot FBOs to comply with EU requirements and competent authority efforts to impose the regulations and oblige FBOs to adopt EU standards through training methods and intensive official controls. Furthermore, the competent authority ordered the closure of establishments that could not be upgraded. Only a limited number of the establishments continued in operation, for instance, 55 out of 59 red meat slaughter houses were forced to cease operation. In 2010, the total number of approved establishments producing food of animal origin was 995. They comprised of 5 slaughter houses, 49 red meat cutting plants, 22 poultry slaughter houses, 2 lagomorphs (rabbits, hares and rodents) slaughter houses, 13 poultry and lagomorphs cutting plants, 29 minced meat establishments, 64 meat preparation establishments, 35 meat products establishments, 30 fish and fishery products establishments, 663 butcheries, 83 milk processing plants. Approximately 1000 registered farms were producing dairy products for direct supply to the consumer.

Per head annual consumption of products for 2008 was: 6.7 kg bovine meat, 53 kg pork, 37 kg poultry, 11 kg sheep and goat meat, 18.1 kg fish, 12 kg local meat products and meat preparation products, 0.4 kg imported meat products and meat preparation products, 12 kg local dairy products and 10.7 kg imported dairy products (Figure 6).

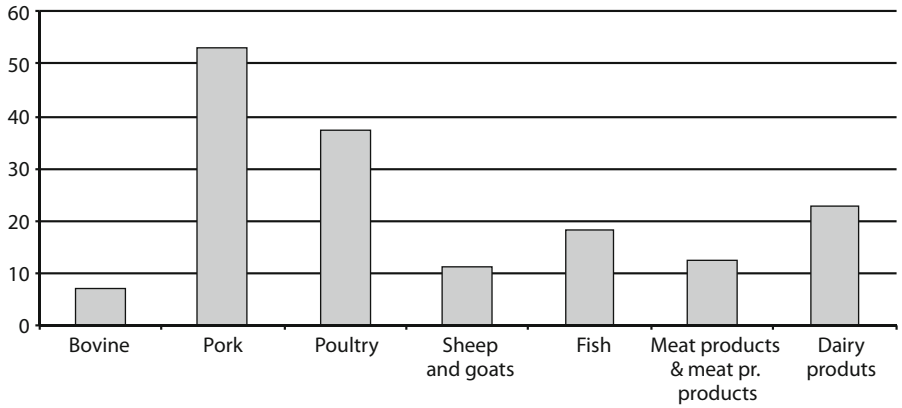

Figure 6. Per head annual consumption of meat and dairy products in 2008 (in kg).

The applications of Hazard Analysis of Critical Control Points (HACCP) and traceability systems are essential control measures and priorities that must be applied by FBOs to guarantee food safety. Food business operators implement the New Hygiene Package, apply safety checks and quality checks, implement HACCP and ISO: 22000, implement the generic plan based on HACCP principles at butcheries and collaborate with laboratories for carrying out laboratory checks on final products. The HACCP system is an obligation under legislation to improve the safety of the products. HACCP is a systematic approach to the identification, evaluation and control of a food safety hazard (Codex Alimentarius, 1997). That means that the HACCP system ensures food safety by identifying the hazards at the critical stages in food production, evaluating these hazards and putting controls in place to deal with them. Such products have a commercial advantage and are more competitive because they satisfy the consumers' demands for the production of safer food (Violaris *et al*., 2008).

Generally, it can be stated that FBOs comply with EU and the National Legislation. Non-compliance in implementing the HACCP system and legislative requirements are due to:

- the high cost of implementing the HACCP system due to factors such as consultation, sampling and analysis of products, and training programs;
- lack of commitment and awareness by FBOs;
- the low level of education of some FBOs especially in old small butcheries in isolated villages;
- lack of staff resources;
- some old businesses have difficulties in adopting the entire EU legislation (Annual Report of MANCP, 2009).

The Veterinary Service is the competent authority for the control of the wholesale market for all food of animal origin based on Reg. (EC) No. 852/2004 and Reg. (EC) No. 853/2004, with the exception of ice-cream and honey where the competence belongs to the Ministry of Health. Establishments producing food of animal origin are approved by the competent authority. Regarding the control of meat, Veterinary Services is the competent authority up to retail market (butcheries) level. Total number of butcheries is 663 of which 300 have separate rooms for the production of meat products and meat preparation products intended to be consumed as cooked, such as Cypriot wine sausages and *sieftalies*.

Veterinary Services operate a 3 year programme (2010-2012) that includes details of the official controls that are carried out by all competent authorities including inspections, sampling and analysis. Official controls are based on risk assessment. The criteria have been set out by the Veterinary Public Health Division and were prepared by the Veterinary District Offices. Criteria for the setting of inspection frequency are the following:

- results of previous inspections and samplings;
- reliability of in-house controls (correct implementations of HACCP);
- condition of equipment and infrastructure (old installations, buildings, difficulties in one-way flow);
- the number of activities of the establishments and variety of products produced;
- type of products produced (RTE products);
- size and capacity of establishments;
- high risk products addressed to sensitive groups;
- whatever else according to the judgment of the inspector could influence the inspections frequency (MANCP, 2010).

The frequency of inspections is in accordance with the risk analysis and is a minimum of two per year and the samplings are also a minimum of two per year in approved establishments and one per year on the final products at butcheries producing meat products and meat preparation products. The number of annual inspections is shown in Table 1.

In cases where the operators have not complied with the Veterinary Officers recommendations, sanctions and safeguard measures depending on the severity of the non-conformity are imposed, (MANCP, 2010) as follows:

- written directives for taking corrective actions;
- detention of suspect or non-suitable products;
- confiscation and destruction of non-suitable products;
- suspension of operation of establishment/business or closure of all or part of the business concerned for an appropriate period of time;
- suspension or withdrawal of the establishment's approval or registration;
- return or re-export of animals or products;
- charge for penal prosecution;
- imposition of administrative fine.

All of the activities of the Veterinary Services are filed in written form and published to the FBOs.

Table 1. Number of annual inspections held in 2008.

Type of establishment	No. of inspections
Slaughterhouses	18
Red meat cutting plants	106
Minced meat establishments	55
Meat products establishments	197
Meat preparation establishments	178
Fish and fish products establishments	58
Lagomorph slaughter houses	2
Poultry slaughter houses	58
Poultry & lagomorphs slaughter houses	19
Dairies	164
Butcheries	1,006
Total	1,861

Challenges

It is essential to consider the challenges for research centres and academic institutions that might arise because of limitations in the practices of the competent authority, such as the lack of microbiological criteria for final products in red meat cutting plants, the lack of microbiological criteria for surface disinfection verification, the lack of unified durability or expiry dates and the consideration of *Escherichia coli* as a hygiene indicator (*E. coli* O157:H7). There are indeed innovative fields open for research that could provide novel approaches and perspectives to industries, government authorities and markets, which can be utilized to produce healthier and safer food of higher quality.

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Producer and consumer attitudes towards red meat in Turkey

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Abstract

World feed prices have increased significantly in recent years. The increases of 71% in barley, 57% in wheat, 44% in soybean, 71%, in sunflower seed meal, 62% in wheat bran and 39% in corn have influenced production costs of red meat negatively. However, world red meat prices, especially in countries with pasture-based farming systems, did not increase greatly. The steep increase in feed price came together with a weakening of consumers' purchasing power over last ten years in Turkey. The general agricultural policy in Turkey and the weakening in purchasing power have resulted in consumer difficulties in buying red meat and meat products recently. People have significantly shifted towards poultry products, pasta and rice in their consumption pattern, because of the relatively lower prices of these products. The increase in pasta consumption of 53% in 10 years clearly shows this trend. Per capita annual consumption of poultry products rose from about 10 kg in 2000 to 16.5 kg in 2010. An increasing population in cities and a rather low increase in productivity of the majority of farms with the so called poly-agricultural farming system caused red beef prices to soar in recent 5 years. In fact, EU beef carcass prices are presently lower than in Turkey: beef prices in the period 2002-2009 were, respectively, €270-332 /100 kg in the EU, and €302-438 /100 kg in Turkey. Consumer prices for red meat have increased by more than 50% in the last 2 years, resulting in Turkish people consuming more poultry meat, grains and vegetables.

Keywords: producers, consumers, red meat, purchasing power.

Introduction

Animal husbandry is an important part of Turkey's agricultural sector and economy, especially in the East and Southeast regions. According to the Agricultural Enterprise Structure Survey, conducted by the Turkish Statistical Institute, there is a considerable reduction in number of enterprises performing both plant and animal production going on while number of farms performing solely livestock production stayed nearly the same. The structure of livestock production enterprises in recent years can be described as follows: total enterprises (farms) 3.0-3.5 million, number of enterprises performing both plant and livestock production (poly-culture) 2,074,479, and number of enterprises performing solely livestock production 72,629, being 3.5% of the total (Tüik, 2009). Poly-cultural agriculture is a traditional approach in rural Turkey and it provides economic assurance to families for a variety of foods. These farmers integrate livestock production with cropping activities or match feed supply to their animals' requirements. For these families, it is most economical to feed the animals with roughage. Sheep and cattle are kept mainly on the grazing lands. Even if they have no land, most village families own a few animals. Animals essentially scrounge for an existence, foraging on crop stubble, weeds, and grass on fallow land and on uncultivated grazing areas.

The evolution of numbers of cattle, sheep and goats in the period 1997 to 2008 is listed in Table 1. The number of buffalo dropped by about 50%, and sheep and goat numbers also declined considerably. Cattle numbers stayed rather stable through the years. The different structure of poly-cultural farms and specialised farms is shown in Table 2, indicating a big variation in size of farms.

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Table 1. Number of livestock by years in Turkey (heads) (Tuik, 2009).

Year	Cattle	Buffalo	Sheep	Goats	Total
1997	11,185,000	194,000	30,238,000	8,376,000	49,993,000
1998	11,031,000	176,000	29,435,000	8,057,000	48,699,000
1999	11,054,000	165,000	30,256,000	7,774,000	49,249,000
2000	10,761,000	146,000	28,492,000	7,201,000	46,600,000
2001	10,548,000	138,000	26,972,000	7,022,000	44,680,000
2002	9,803,000	121,000	25,173,706	6,780,094	41,878,378
2003	9,788,000	113,000	25,431,539	6,771,675	42,104,672
2004	10,069,000	103,000	25,201,155	6,609,937	41,984,338
2005	10,526,000	104,000	25,304,325	6,517,464	42,453,194
2006	10,871,000	100,516	25,616,912	6,643,294	43,232,086
2007	11,036,000	84,705	25,462,293	6,286,358	42,870,109
2008	10,859,000	86,297	23,974.591	5,593,561	40,514,391

Table 2. Average size of herd in 2008 (http://www.tarimsal.com/tarim_istatistikleri.htm).

	Dairy cows	Beef animals	Sheep	Goats
Poly-culture farms: livestock plus plant production	5	5	5	1.65
Farms specialised in livestock	2,674	1-25	69	5.2

Animal production and protein consumption

Although, Turkey has a significant place within Europe and in the world with regard to bovine and ovine animal populations (6th in the World and 2nd in Europe), its total number of farm animals is reducing gradually. On the other hand, the human population of Turkey has increased by 25% since 1990. The macroeconomic policies which were implemented caused the proportion of the total population living in rural areas to drop from 41% in 1990 to 29% in 2009 (Tuik, 2009). The reduction in rural population also caused animal numbers to decrease because rural people traditionally do have some animals around their houses.

Turkey's cities experience a growing demand for animal products as both populations and incomes rise. Although yields per animal are growing, traditional methods kept the livestock sector from achieving its considerable potential. Rural families raise livestock on land that lacks alternative uses. This system does not allow high levels of production, which is necessary to meet the needs of the rapidly expanding population. Moreover, overgrazing has caused environmental damage that is difficult to repair. Data on the livestock sector are poor but indicative of general trends. Statistics reveal that in past years changes have been seen in the relative role of various animal species in the farm economy. Given Turkish dietary preferences, sheep have a relatively high value and increased in number from 36.8 million head in 1970 to about 40.4 million head in 1992. However, this number has gradually fallen to around 23-24 million in recent years. Nevertheless, sheep and goats in Turkey make an important but relatively decreasing contribution to the meat and milk consumption of the population in the period 2000 to 2010 (Table 3). Lamb and mutton prices rise due to a reduction in the number of sheep during the last 10 years in Turkey. In contrast, annual consumption of beef and especially poultry rose significantly in the same period.

Table 3. Consumption of various products in Turkey per person per year (kg) (Tuik, 2011).

Year	Main sort of vegetable	Main sorts of fruit	Rice	Pasta	Milk	Poultry meat	Cattle and beef meat	Sheep & goat meat	Fish
2000	239.4	110.9	13	4,2	12.00	9.91	9	5.61	7.62
2004	228.9	99.5	10	4.8	12.47	12.31	10	4.53	7.66
2005	236.5	114.7	14	6.0	12.80	12.74	10	4.43	7.11
2007	223.8	110.6	13	6.2	15.00	14.12	11	4.34	6.93
2010	232.0	115.0	13.8	6.5	24.00	19.13	16	4.14	8.00

The reduction in animal numbers, excluding cattle and poultry, and the traditionally low productivity of the poly-cultural livestock farming system resulted in animal protein supply failing to match the increase in population giving rise to an even greater deficit. As result, in Turkey 35.6 g of meat per capita per day (13 kg/capita/year) is consumed. This consumption is rather low when compared to consumption in the developed countries.

A considerable amount of the livestock production in Turkey is obtained from small scale traditional livestock farms in the East and South East and West of Turkey. The majority of these farms lack the economic and scientific necessities for production, and do not receive signals of changing consumer preferences in terms of quantity and quality of production. Bovine and bovine animal red meat production for the period 1991-2011 is given in Table 4. During this period, it is clear that there was some rise in meat production despite a 3% reduction in animal numbers in period 1997-2008 (Table 1). While there was not much change in beef meat production within the total red meat segment, an increase in cattle meat and a decrease in sheep and especially in buffalo meat production were observed. However, the increase in slaughter meat in 2010 and 2011 seems to be a statistical phenomenon. In recent years also animals slaughtered outside the slaughterhouses have been included in the statistical reporting. Also considerable imports in recent years contributed to the observed increase in slaughtering's.

The fact that meat production other than sheep and buffalo meat probably even increased somewhat despite the significant decrease in animal numbers is also a result of the cattle improvement programmes and the increase in cross-breeding and specialist culture breeds (Table 4). Turkey has rich genetic resources with 8 cattle, 18 sheep, 4 goat, 7 horse and 9 poultry breeds. Cross-breeding of local breeds with imported specialist breeds risks the loss of local genetic resources. On the Black Sea coastal strip, almost all local cattle have been replaced by the Jersey breed. Nevertheless, nation wide still only 25% of the local cattle breeds in Turkey have been crossbred with specialist breeds and 75% of animals maintain their pure breeding. The 'Kıvırcık' sheep of Thrace has been crossbred with the German 'Ots-Friz' breed to develop the Tahirova breed, causing the genetic erosion of both indigenous breeds. Certain sheep strains such as 'Karakul' which is native to the northern transition zone, and 'Tuj' which is native to the Kars region, are faced with the danger of extinction. Another local animal breed under threat is the Angora goat, which has been placed under protection to prevent its total extinction. Most of the red meat production comes from hybrids that have Holstein or Simmental genes, while local sheep breeds like Tahirova, Türkgeldi, Morkaraman, Akkaraman and Merino have also been crossed for meat production.

In the determination of red meat prices in Turkey the general economic situation is influential, as is the above-mentioned market structure that affects all livestock products. Effects depending on the economic situation are for instance changes in input prices, mainly feed, and the changes in purchasing power of the consumer (Kaygısız, 2001). As is well known, world feed prices have increased significantly in last ten years. The recorded increase from 2000 to 2009 was 50 to 71%

Table 4. Heads and amount of slaughtered sheep, goat, pigs and bovine animals in tons in Turkey[1] (TUIK.gov.tr, 2012).

Year	Cattle							
	Total		Culture		Cross-bred		Domestic	
	Head	Quantity	Head	Quantity	Head	Quantity	Head	Quantity
1991	2,162,860	309,563	263,052	52,919	569,404	91,532	1,330,404	165,113
1995	1,820,770	292,447	179,230	37,634	924,630	164,036	716,910	90,777
2000	2,101,583	354,636	255,855	58,534	804,798	154,377	1,040,930	141,725
2005	1,630,471	321,681	365,225	86,070	749,693	151,432	515,553	84,179
2009	1,502,073	325,286	-	-	-	-	-	-
2010	2,602,246	618,584	-	-	-	-	-	-
2011	2,571,765	644,906	-	-	-	-	-	-
	Sheep		Goat		Pig		Buffalo	
	Head	Quantity	Head	Quantity	Head	Quantity	Head	Quantity
1991	7,926,513	128,626	1,198,008	19,570	2,272	114	59,913	8,803
1995	5,493,520	102,115	842,770	14,124	5,570	446	38,310	6,094
2000	6,110,853	111,139	1,166,169	21,395	3,650	274	23,518	4,047
2005	4,145,343	73,743	688,704	12,390	278	14	8,920	1,577
2009	3,997,348	74,633	606,042	11,675	47	3	4,857	1,005
2010	6,873,626	135,687	1,219,504	23,060	-	-	15,720	3,387
2011	5,479,546	107,076	1,254,092	23,318	-	-	7,255	1,615

[1] Starting from 2010 data on red meat production covers slaughtering's in slaughterhouses as well as outside slaughterhouses.

for barley, 57% for wheat, 44% for soybean, 71% for sunflower seed meal, 62% for wheat bran, and 39% for maize. However, world red meat prices especially in countries with pasture-based systems did not increase to the same extent as in Turkey. The effects of large increases in feed prices and instability in consumers' purchasing power in the last ten years have resulted in a weakening of the position of the red meat market in Turkey. Considering the purchasing power of the Turkish people, they have had difficulty in paying the high prices for red meat and meat products recently and so have shifted their consumption towards poultry products, pasta and rice.

The share of livestock production supports within the agricultural support system increased during the period 2001 to 2008. Nevertheless, the Turkish red meat sector is experiencing perhaps the worst instability since 1996, amid both a growing shortage that has put firms and consumers under considerable strain and ineffective government oversight. In a bid to curb rapidly increasing meat prices caused by a growing shortage in the domestic market, the government recently decided to resume livestock and red meat imports through the state-owned Meat and Fish Corporation (EBK). Animals are imported from neighbouring European countries, but also from South America, etc. (Table 5).

Table 5. Livestock and red meat import quantities as reported by the Meat and Fish Corporation and the private sector in Turkey in 2010.

Type of product	Quantity
Cattle for slaughter	181,578 head
Beef cattle	20,000 head
Sacrificial cattle	19,987 head
Sheep for slaughter	20,667 head
Sacrificial sheep	305,559 head
Beef carcasses	35,043 ton

Attitude of consumers towards red meat

Traditionally, most of the Turkish population prefer sheep meat to beef. But at present Turkish consumers are buying Europe's most expensive sheep meat. Therefore, the average consumer has recently tended to turn to cheaper meats, like poultry. However, increasing purchasing power does not really lead to quality criteria receiving more weight in the buying process as long as meat prices continue to increase. Consumption of red meat changes very much from year to year, depending upon the income and price changes. On the other hand, the demand for beef from the red meat segment is rising in line with the rise in the level of education and income. There is especially an increase in the demand for lean meat recently. Health programs on TV and radio are very effective in stimulating this.

Poultry meat prices are determined according to free market rules in Turkey and there is no government intervention mechanism to support poultry prices. Accordingly, the poultry meat price is determined by the raw material feed prices, which is the most important component of production costs. It results in a consumer demand which fluctuates with seasonal feed prices. Within the poultry meat segment, consumers prefer chicken meat which is cheaper than turkey and ostrich meat. Also in family owned businesses, goose meat is of some importance in the consumption pattern in the East of Turkey. As can be seen in Table 6, poultry prices are on average much lower than the beef, sheep and goat meat prices which affect the consumption pattern of the majority of Turkey's population (Fidan, 2005).

Besides price, nutritional and health value and tastiness of poultry meat have recently been more appreciated by the consumer and also contributed to a growing demand of this meat in Turkey. The chicken sector in Turkey has reached a competitive level comparable to European countries with its modern technology and high quality slaughtering facilities. However, red meat is still preferred by most of the respondents in a consumer survey (Ergönül, 2011), although they know that the cholesterol content of red meat is higher than that of poultry meat or fish. Consumers in Turkey still prefer processed meat products manufactured from red meat. Red meat is usually consumed as meat meal (with vegetables), whereas poultry meat is consumed after frying or being cooked in oven. Most of Turkish meat consumers have concerns on food safety, but half of the respondents

Table 6. Prices of various products in Turkey (EUR) per kg (FAOSTAT, 2011).

Year	Rice	Pasta	Milk	Poultry meat	Beef meat	Sheep meat	Goat meat	Buffalo meat
2000	0.44	0.38	0.37	1.68	4.89	4.84	4.56	4.46
2005	0.45	0.43	0.39	1.50	5.93	5.94	5.63	5.24
2010	0.60	0.50	0.47	2.56	9.58	9.85	9.54	8.67

in the survey did not know anything about the system HACCP and most of them do not check the packages whether they have a HACCP label or not It is obvious that consumers should be more conscious about the food safety systems.

Culture, traditions, and taboos are influencing the consumption of meat in the Turkish society. The Turkish cuisine includes many different stews of vegetables and meat of lamb and beef. Demand for beef from the red meat segment is rising in line with the rise in the level of education and income. As said, there is a growing interest in lean meat recently. Some surveys showed that despite recent food tendencies and new consumption patterns, consumers living in some regions of Turkey still prefer red meat above poultry meat and fish (Ergönül, 2011). As known, health conscious people tend to avoid red meat due to its negative media portrayal. But it can be said that only rich people care about this in Turkey. The lower income group people prefer buying poultry because it is much cheaper. They eat more poultry, mainly broiler and processed turkey, in all regions of Turkey. As eating outdoors rises with income, high-income consumers eat relatively more fish in all regions, but mostly in the Black Sea region.

Results and discussion

Turkey has very favourable land for livestock production with its geographical and ecological conditions. However, the traditional agricultural enterprises performing livestock production are small and have low efficiency. This makes the development of the sector difficult. Meat demand in Turkey has increased rapidly due to a growing population. However, the Turkish consumer still does not buy much meat because of the high prices. Also, producers are complaining because of rising feed and other input prices and resulting low profit. The increasing trend in meat price and demand will probably continue as a result of the recent political policies and a decrease in availability of grain caused by excessive heat and floods all over the world, in combination with more grains used for bio-diesel production, especially in America. Therefore, the low red meat consumption in Turkey is due to a combination of high red meat prices, an insufficient level of production and a lack of purchasing power. Low profit margins result in producers ceasing production as the sector has lost its attractiveness. Farmers also fear meat imports, which depress the market further. It has indeed become destructive to the market to offset price increases and production shortages by populist measures such as importing meat and live animals. In response to the high red meat prices, the Turkish Council of Ministers set import quotas for live slaughter cattle and beef on April 30, 2010. As a result, the problems of the red meat sector have been seriously worsened resulting in even higher prices, which have pushed the Turkish population even more towards consumption of poultry, grains and vegetables. For instance, pasta consumption increased by 54% in recent years, clearly showing this trend. Per capita annual consumption of poultry products increased by 240% (2.5 kg to 11 kg) from 1994 to 2009, while consumer prices for red meat increased by more than 50% in the last 2 years. The negative trend in domestic livestock production has become even more evident as a result of recent livestock imports. This policy is not a permanent solution to cheaper meat availability for Turkish consumers.

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Polish beef consumers: emerging or declining market?

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Abstract

The consumption of beef in Poland decreased from 17 kg per capita in the late 1980s to 3.8 kg per capita in the early 2000s. This decline was much greater than in other European countries. This paper presents results of quantitative consumer research, carried out from December 2009 to February 2010, to identify consumer perceptions of beef, habits, culinary preferences and factors hampering its consumption. The survey was conducted on a sample of 3,195 respondents. The respondents stated that amongst the features which are decisive in the choice of a particular piece of beef are: colour, general appearance and fat content. Other important factors mentioned were: best before date and price. Consumers also mentioned factors referring to consumption. The most important were: sensory aspects (taste, juiciness), nutritional value and healthiness. Respondents also confirmed the fact that beef consumption decreased in their households but the number of responses indicating that fact and those indicating that consumption had not changed were very similar. The vast majority of consumers stated they did not eat beef because of its high price. Some respondents would consider commencing or resuming beef consumption on condition that price decreased. Other conditions for increased beef consumption are as follows: better taste and greater opportunities to buy it. It can be concluded that there is a great potential for beef market development in Poland. Future studies should investigate consumer concerns with regard to beef, as well as the producer, distributor and retailer roles in the beef supply chain.

Keywords: beef consumption, beef quality, consumer perception, Poland

Introduction

Consumers usually eat food products which are palatable and give pleasure, but they also rationalize their purchasing decisions, tend to choose products which ensure good health and are not difficult to prepare for eating.

This generality refers to all types of food, but the importance of particular consumer behaviours depends on the type of product. In this context, it is proper to focus attention on specific consumer behaviours towards beef, all the more so as its consumption in recent decades in Poland has significantly decreased, from 17 kg per capita in the late 1980s to less than 4 kg per capita in the first decade of this century.

A tendency towards a marked decrease in beef consumption has also been observed in many countries worldwide, of different economic, socio-cultural and natural conditions both on a macro and micro-scale.

On the macro-scale, there are factors characterizing the level of socio-economic development, including mainly gross domestic product (GDP) per capita, the level of unemployment and lifestyles of inhabitants or respective value systems. As regards micro-scale factors, these include socio-demographic features of consumers, purchasing power and individual food preferences.

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The world literature on consumer behaviour in the beef market and resulting tendencies in its development underlines that consumers have rapidly changed in the last decade due to changes in socio-economic, cultural and ethical factors. As a result, production of red meat has become unstable because of health risks associated with operational scandals. Thus, in order to rebuild consumers' trust in red meat it is necessary to understand their expectations regarding its quality and safety (Corcoran *et al.,* 2001). It must also be stressed that the essence of quality is changing dynamically. There are several possible ways of perceiving beef and veal quality (Grunert, 1997), which depend on various features (physical, safety, packing, production system, origin and other). Quality is interpreted in a different way by the different operators in the sector, such as producers, processing plants, traders and consumers. In order to effectively satisfy all players in the beef market it is necessary to recognize their expectations and work out optimal strategies of beef market development where the interests of all the players are taken into account.

Material and methods

In the last two decades, as was mentioned, the consumption of beef in Poland decreased from 17 kg to 3.8 kg per capita and such a marked decline contrasts with other EU countries and worldwide (Gellynck and Verbeke, 2001). To get an insight into the factors responsible for this trend in Poland, a five year project has been developed on optimization of beef production in Poland in accordance with the strategy 'from farm to fork'[1]. This paper presents results of the quantitative consumer study, carried out within the first stage of the project, in order to identify consumers' perception of beef, habits, culinary preferences and factors hampering its consumption.

The survey was conducted on a sample of 3,195 respondents, selected from a database (PersonicX) developed by a commercial market research agency (Acxiom). (PersonicX is a household-level segmentation system that clusters households into one of 40 segments based on specific consumer behaviour and demographic characteristics. These 40 clusters are grouped by similar demographics, products consumption, life stage and ways of spending free time) (http://www.acxiom.pl/...).

For data collection, the computer assisted telephone interviews (CATI) technique was used from December 2009 to February 2010. The respondents were asked to report positive and negative beef features including motives referring to purchase and consumption of beef products. Other questions referred to types of purchased beef and culinary use of beef. Consumers were also asked about the level of beef consumption and conditions which would encourage the consumption of beef. The results of this study confirmed results of other researchers from Europe, Asia and South America, regarding the diversification of consumers' behaviour towards beef qualified by variables such as gender, income or place of residence.

Results and comments

Polish respondents considered that the basic attributes of beef are its relative leanness and that it is quite tasty. The healthiness of beef was more seldom mentioned. Consumers also mentioned a specific colour of beef or its general appearance as distinct from other types of meat. On the one hand, this can be considered a distinctive criterion but on the other hand it is a feature which can distinguish beef unfavourably among other types of meat. This has also been pointed out by researchers elsewhere.

In general, respondents associated beef with a specific dish, animal being a cow, simple meat, and traits such as being healthy, lean, expensive and tasty. It can be stated that associations with beef expressed by respondents were rather positive which was also reflected in responses in other parts

[1] Research financed by European Regional Development Fund under The Innovative Economy Operational Programme, 2007-2013, Optimizing beef production in Poland according to strategy from 'farm to fork'.

of the questionnaire referring to positive and negative features of beef. The data shown in Figure 1 indicate a generally positive perception of beef. This arises from the comparison with negative features attributed to beef by surveyed respondents. It is also worth adding that some of the features have an ambivalent character, for example red colour of beef which is, on the one hand, treated as a positive distinctive feature but on the other hand as a negative one.

A more detailed analysis of the sequence of beef attributes shows that the majority of consumers focus their opinions of beef on features distinguishing it from other types of meat, underlining the fact that it is leaner, tastier and healthier (Figure 1).

However, amongst the unfavourable features of beef most often mentioned were problems connected with preparing it for consumption. This reflected opinion that it is 'tough and takes long time to prepare'. Respondents also mentioned the relatively high price of beef, which is not surprising, bearing in mind that beef prices have increased considerably more than other meat prices. Red colour and health risks were also mentioned as negatively perceived features of beef. The latter issue is a recollection of the beef crisis worldwide caused by bovine spongiform encephalopathy (BSE) (Figure 2).

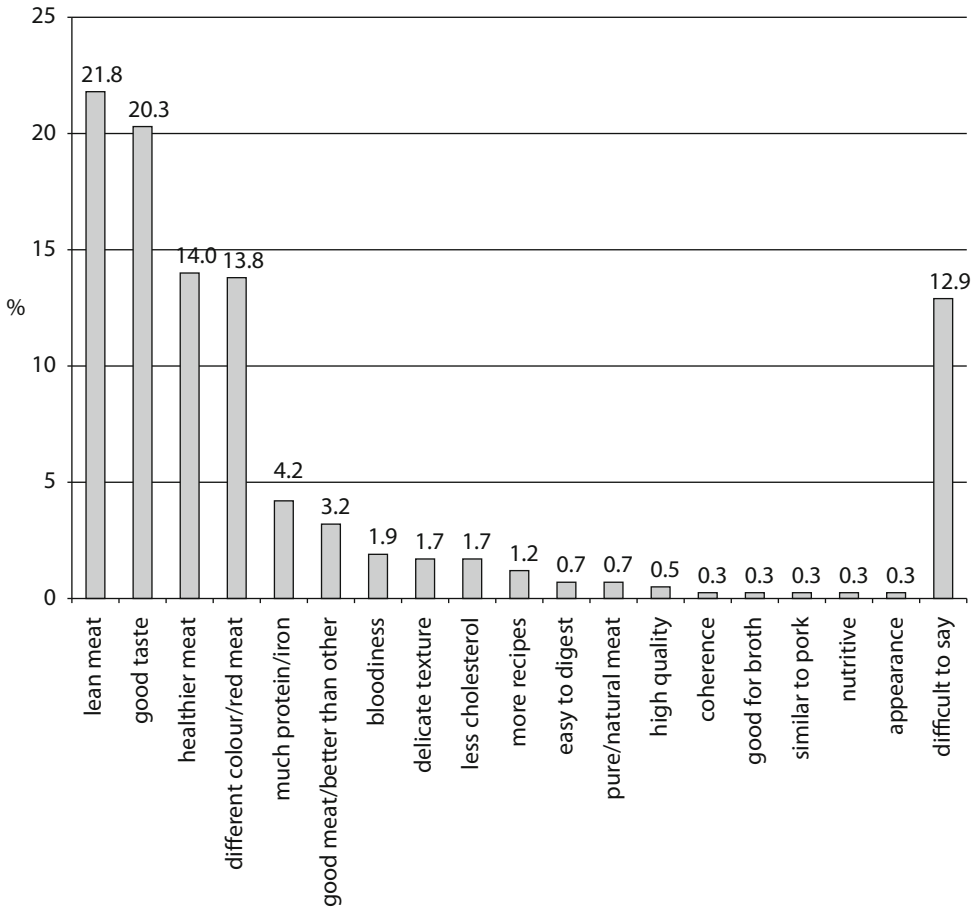

Figure 1. Positive features of beef in consumers' opinion (%).

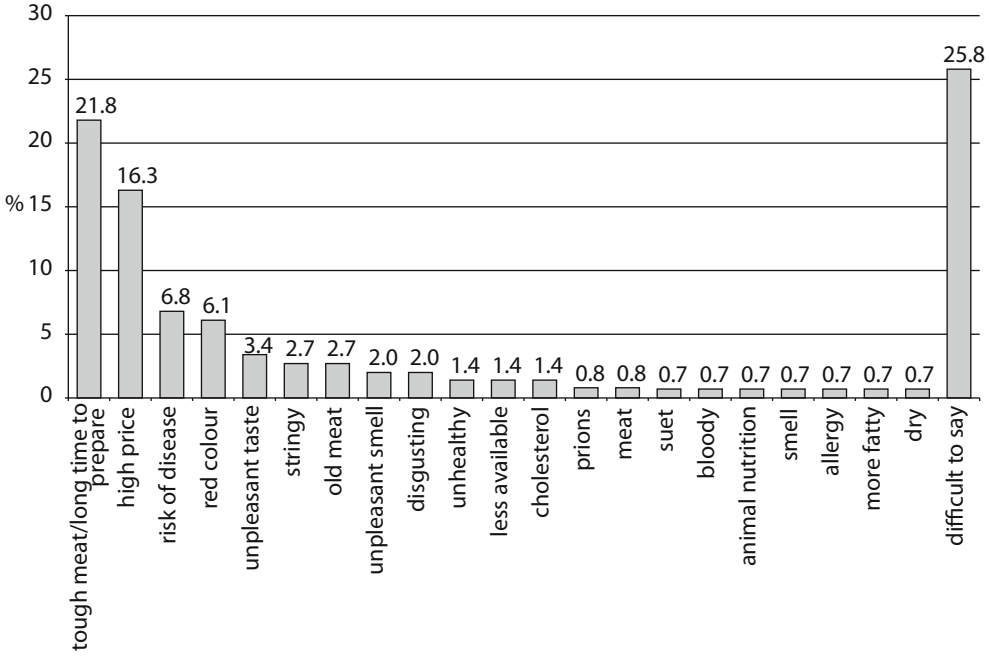

Figure 2. Negative features of beef in consumers' opinion (%).

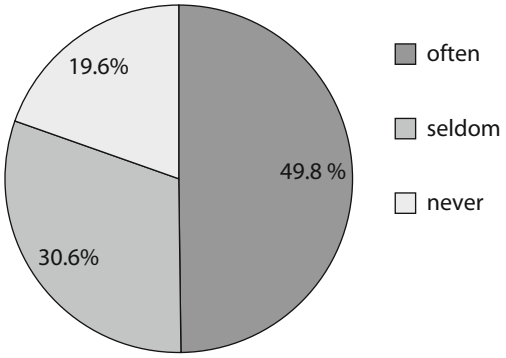

Figure 3. Frequency of beef purchase in consumers' opinion (%).

In the context of balancing the favourable and unfavourable features of beef, less than half (49.8%) of respondents stated that they purchase this type of meat often and one in three said they seldom purchase beef. Nearly one in five respondents stated that they do not purchase beef at all (Figure 3).

The survey also included a question on the most frequently purchased types of beef. It was found that broth beef was the most popular. It was bought by one in five respondents. The high position of minced beef is worth noting; it can confirm worldwide tendencies in this area but on the other hand this kind of meat is used in many Polish dishes such as boiled meat balls where minced pork is mixed with minced beef in order to achieve better culinary and sensory properties. The least frequently purchased type of beef was shin beef which may be due to the fact that consumers do not know how to prepare it. Beef sirloin was not particularly popular either, because of its high price (Figure 4).

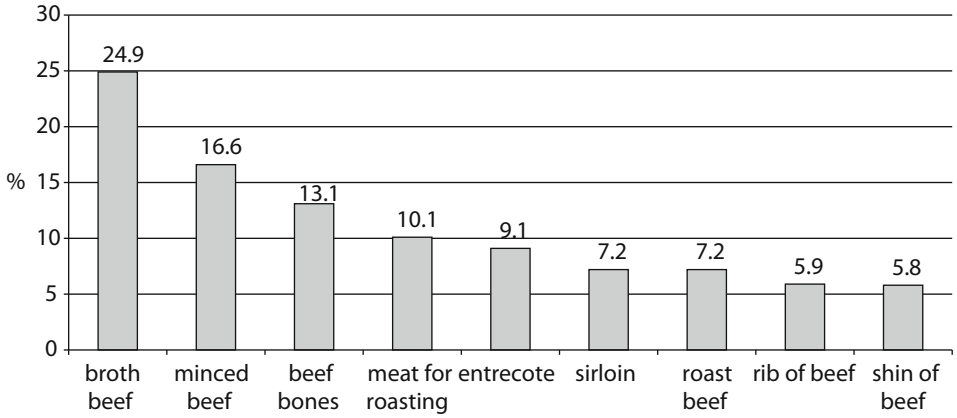

Figure 4. Type of purchased beef in consumers' opinion (%).

The respondents' replies indicating the most frequently purchased types of beef are confirmed in their opinions on their culinary use. One in four respondents stated that the purchased beef is used for beef broth. Somewhat less popular were beef collops and beef (steak) roll-ups, and culturally strange for Poles, steaks were only preferred by 8.5% respondents (Figure 5). There may be a concern that such responses could be due to terminology issues. It is possible that respondents treated beef collops and beef (steak) roll-ups as belonging to the same or similar dish category and hence related this type of dish to relatively popular dishes prepared from beef.

As with results from many publications, consumers' choices of food are largely influenced by product related features (Gutkowska and Ozimek, 2005; Babicz-Zielińska, 2001). This fact is confirmed by the information obtained in the present survey. The respondents stated that amongst features which are decisive for the choice of a particular piece of beef are: colour, general appearance and

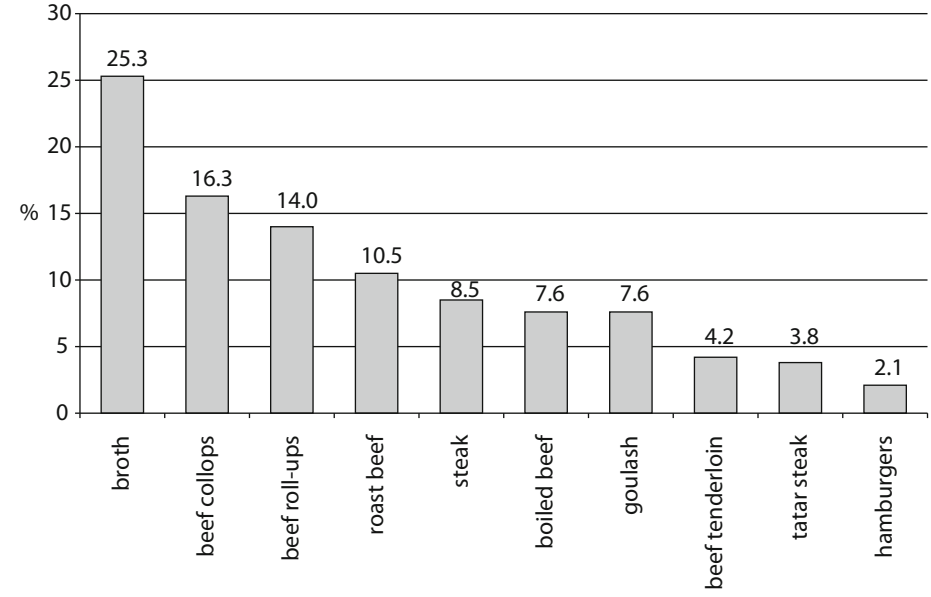

Figure 5. Culinary use of beef in consumers' opinion (%).

fat content. Other important factors mentioned by respondents were: best before date and price. The least important features mentioned were: producer and opinion of the seller. It is worth noting that a relatively low rank was given to price as a purchase decision factor, especially due to its relatively higher level in comparison to other types of meat. This can be explained as follows. Knowing that beef is more expensive than other types of meat, its consumers treat price as an objectively existing situation which is not so important compared to sensory beef factors (general appearance, colour, fat content). More detailed information on the importance of features mentioned by consumers when they consume beef is shown in Table 1.

Guenther *et al.* (2005) showed that, in general, consumers of meat differed little on factors they identified as important when buying a food. More than nine tenths of consumers, regardless of types of meat consumed, considered taste, safety and nutritional value to be important. Three fourths considered ease of preparation to be important. According to Davis and Lin (2005), for US consumers, convenience is more important than nutritional value when it comes to food choices. However, Reicks *et al.* (2011) stated that US females placed greater importance on tenderness, ease of preparation, and nutritional value of steaks and roasts than did males. Another study with Belgian consumers indicated that the most important information in assisting consumer decisions was: expiry date, meat type, label in general and quality mark (Verbeke and Ward, 2006).

Another issue investigated in the CATI survey was the reasons for consuming beef. It was not difficult to note that hedonistic reasons, expressed by marking the reply 'It is tasty', dominated over other features. Consumers also indicated factors referring to sensory aspects (juiciness), nutritional value and healthiness of beef (Table 2).

McCarthy *et al.* (2003) stated in referring to Irish consumers, that attitude toward beef has a very significant influence on consumption behaviour. Moreover, the belief evaluation for health, safety and taste are the most significant determinants of attitude toward beef. Results of other studies, referring to US consumers, showed that palatability attributes played a central role in determining consumers' preferences (Xue *et al*., 2010). Hornibrook and Fearne (2003) stated that 'taste and tenderness', 'consistent eating quality' and 'high food safety' were ranked the highest, while 'fat cover and marbling' were viewed as least important by UK beef consumers.

As mentioned earlier, beef in Poland is most frequently bought to boil broth. A dominating opinion among respondents on the most often used culinary techniques to prepare beef was not surprising.

Table 1. The most important factors in the decision to buy beef (%) (5-point scale, where 1 is least important and 5 is most important).

Factors affecting the decision to buy beef (%)	1	2	3	4	5	Mean score
General appearance	8.6	7.8	5.5	13.1	65.0	4.2
Colour	4.9	8.1	8.4	13.5	65.2	4.3
Fat content	5.6	9.1	13.1	10.0	62.2	4.1
Health impact	12.7	15.8	14.7	18.2	38.6	3.5
Producer	25.2	19.6	18.3	17.0	19.9	2.9
Polish origin	14.0	13.4	19.9	12.3	40.5	3.5
Culinary usefulness	12.5	14.2	17.9	19.0	36.4	3.5
Quality label	14.8	14.3	16.7	17.3	37.0	3.5
Best before date	12.1	12.2	14.7	16.1	44.9	3.7
Price	9.3	11.1	18.2	24.3	37.0	3.7
Opinion of seller	19.7	21.9	20.3	20.8	17.3	2.9

Table 2. Most important factors in the decision to consume beef (%) (5-point scale, where 1 is not important and 5 is extremely important).

Factors affecting the decision to consume beef (%)	1	2	3	4	5	Mean score
It is tasty	11.1	13.5	16.7	15.3	43.4	3.7
Soft	15.6	18.0	21.4	19.8	25.2	3.2
Juicy	12.2	14.5	19.0	19.4	34.8	3.5
Habit	16.3	19.9	15.9	21.7	26.0	3.2
Diet diversification	13.2	18.8	14.5	22.9	30.5	3.4
Nutritional value	13.2	13.7	18.1	19.3	35.6	3.5
Dietician/doctor's advice	19.3	16.3	18.7	20.3	25.4	3.2
Healthy	12.2	14.3	17.7	20.5	35.4	3.5
Ease of preparation	14.7	15.5	19.5	23.5	26.7	3.3

The dominating reply was 'boiling' and the second position was 'stewing' which is very popular in many beef culinary techniques in order to make the meat softer. The least frequently used technique was 'grilling' which is a consequence of traditional behaviour of Polish consumers who use this type of culinary process seasonally and in particular situations (Figure 6).

The survey also included places of beef purchase. It was shown that Polish consumers most frequently buy meat in the so-called specialized shops, namely 'butcher' shops, and this answer was chosen by one in three respondents (32%). Some consumers purchased beef in supermarkets/hypermarkets (17%), and also in local grocery stores with a separate meat section (17%). Purchasing in discount shops, bazaars and directly from the producers was not very popular, with just one in ten respondents buying beef in these outlets.

As mentioned in the introduction, beef consumption in Poland has significantly decreased due to many reasons. Respondents have also confirmed that beef consumption decreased in their households but the number of responses indicating a decrease and the number indicating that consumption had not changed were very similar (Figure 7).

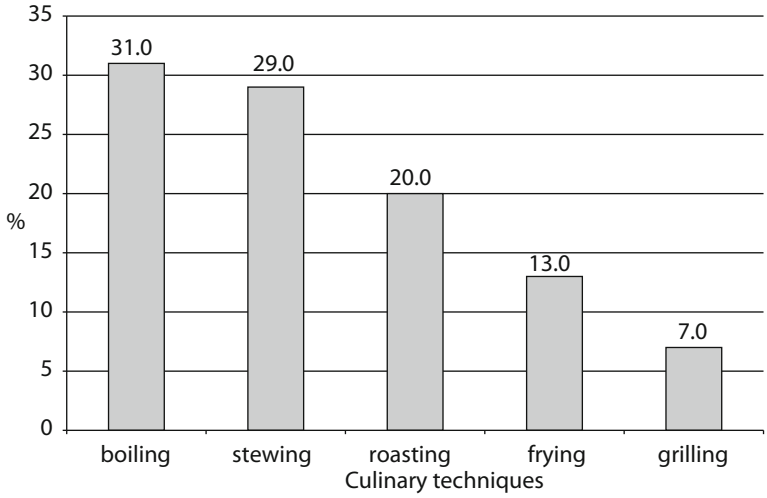

Figure 6. The most popular culinary techniques used by consumers at home (%).

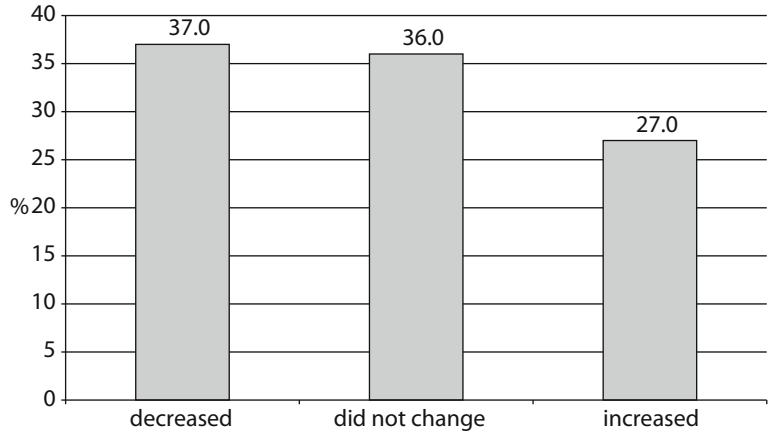

Figure 7. Changes in beef consumption in recent years in consumers' opinion (%).

The beef consumption decrease observed by respondents was mostly explained by the price increase which is confirmed by objective trends reported elsewhere (Świetlik, 2008). The surveyed consumers also made critical remarks on the higher price (37%) and lower quality of beef (30%). The risk to human health of BSE disease (16%) was a less important reason for the beef consumption decrease. However, Verbeke and Viaene (2000) stated that health and safety concerns were important motives in changing consumer attitudes towards meat. According to Ozimek *et al.* (2004) when consumers assess the importance of some risk factors associated with consumed foods, BSE is perceived as having a low importance compared to, for example, the presence of additives, residues of chemical plant protection agents, or the presence of pathogens.

Respondents were also asked about the main factors that might increase beef consumption. In spite of the negative opinions, consumers declare an interest in buying beef more frequently, depending mainly on a decrease in price (Table 3).

In the literature on consumer behaviour in the food market, the question of consumer trust in the information on food product labels is often stressed as well as quality symbols or certificates confirming origin. The present CATI study showed that 44.3% of consumers had problems regarding confirmation of quality and only one in three respondents (30.3%) came across a quality symbol.

Table 3. Factors for a beef consumption increase in consumers' opinion (%).

Reasons of buying more beef in future	(%) of indications
Lower price	46.9
Sufficient quantity	22.3
Better availability	5.7
Better quality	5.1
Healthier	4.0
Less time of preparation	3.6
Dietician/Doctor's advice	2.7
Other people/family opinion	2.4
Difficult to say	2.2
No preference	1.5
Leaner	1.1

Almost 1/4 of consumers had heard of particular stamps and 10% indicated the class number or quality mark (Figure 8).

Compared to other studies, for example with Belgium consumers, interest in information put on labels is low for cues directly related to traceability and product identification while much higher for others – indications of quality such as certified quality marks or seals of guarantee, and mandatory standard information like expiry date (Verbeke and Ward, 2006). According to Bernues *et al.* (2003), referring to beef consumers from some European countries, information on the system of production, and on traceability and quality assurance, together with the cut name, had a comparatively higher importance than information on nutrition and time of maturation.

The present survey also included those respondents who declared that they were not consumers of beef. It would be interesting to find an answer to the question of why some consumers stopped eating beef. The vast majority of consumers who stated that they did not eat beef gave as the reason its high price or being on a meatless diet. Some consumers agreed with the statements that 'Beef I would like to eat is not sold' or 'I cannot prepare beef dishes' (Figure 9) indicating problems with the consistent availability of high quality beef and their own culinary skill difficulties.

In this context, declarations of this group of respondents as regards the possibility of changing present dietary habits to include beef in the home cuisine are understandable. Some respondents would take such a possibility into account if prices of beef decreased. Other conditions for starting beef consumption are as follows: better taste and better opportunities to buy it (Figure 10).

Referring to Irish consumers, positive health and taste perceptions resulted in positive attitudes towards beef, thus highlighting the health benefits and emphasising a positive eating experience could also improve consumer demand. Furthermore, the majority of respondents indicated that they would increase consumption in response to a positive health message (McCarthy *et al.*, 2003).

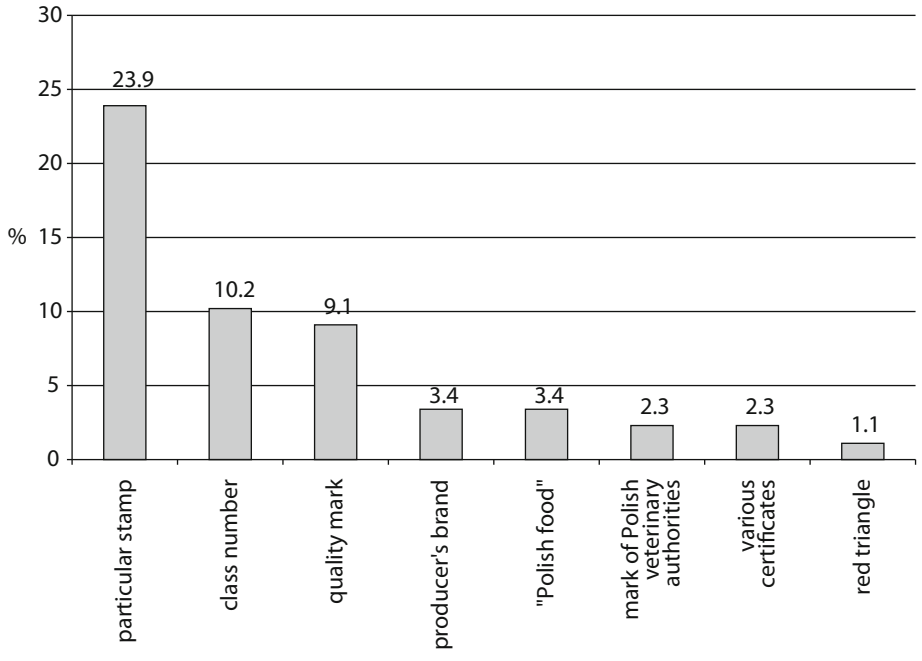

Figure 8. The most popular beef quality indicators consumers' opinion (%).

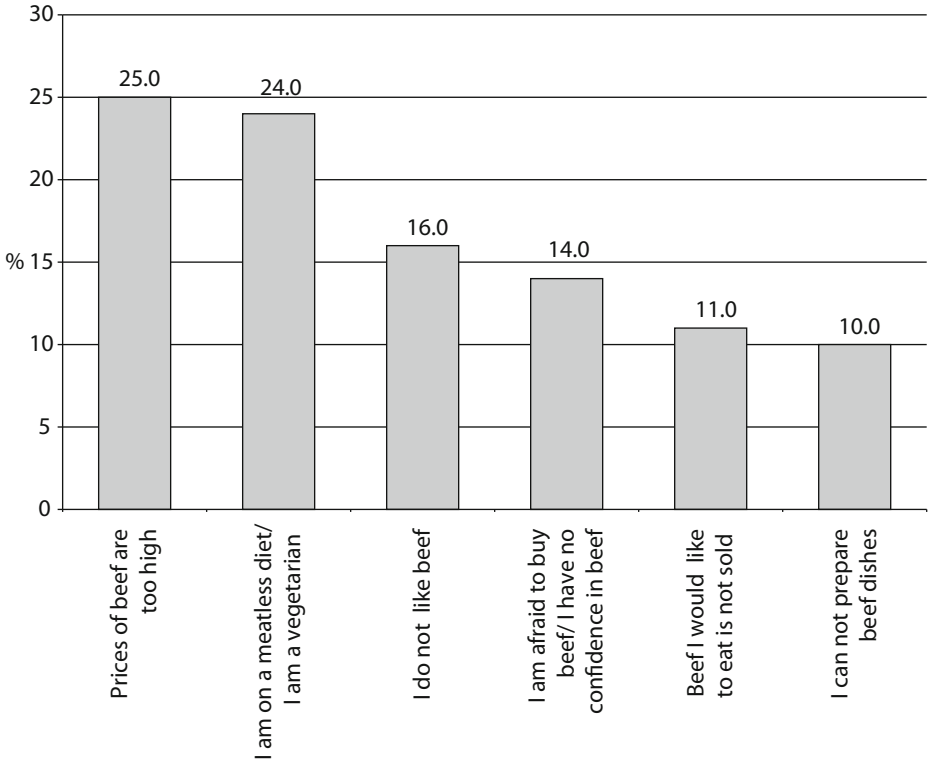

Figure 9. Reasons for decline in beef consumption in consumers' opinion (%).

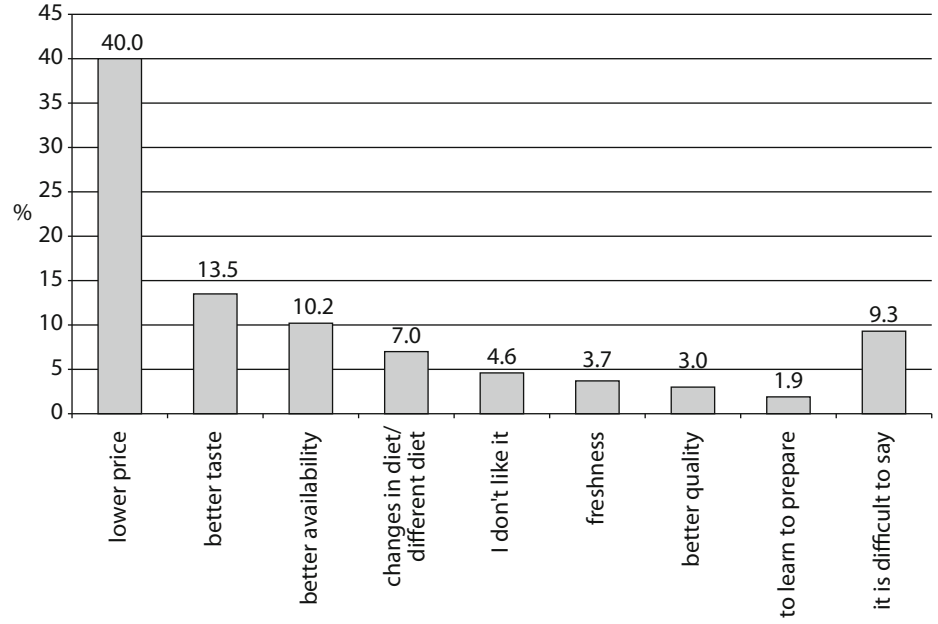

Figure 10. Conditions for starting beef consumption in consumers' opinion (%).

Conclusion

It can be concluded that there is great potential for beef market development in Poland. Basic conditions for such development depend on more competitive prices, higher consumer awareness of the benefits of beef consumption and possibilities for its preparation which would be enjoyable both in cooking and eating. Future studies should investigate consumer concerns with regard to beef, and focus on the positive aspects of beef and factors which cause consumer interest in beef. The roles of producers, distributors and retailers in the beef supply chain are also crucial. Such insights are important for future beef market introduction and the development of marketing and communication strategies.

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All papers have been reviewed by at least two professional reviewers and an English language proof reading was done by a native English expert.

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Keyword index