THE GEOGRAPHY OF ORGANIC FOOD: CONFRONTING COMPLEXITY AT LOCAL AND GLOBAL SCALES

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ABSTRACT

The development of the EU agri-food system has been driven by modernization and industrialization of food production, processing and distribution, the standardization of the food supply and the globalization of food markets, but also by consumer demand for quality food linked to different strategies in order to valorize local and/or regional food products. The primary aim of this thesis was to evaluate the interaction between producers, consumers and main organic standards, as drivers of the organic food geography at local and global scales, using organic certification as the underpinning theme. The approach taken adopts some of the core elements of quality conventions theory in order to understand at the global scale the quality conventions that establish "orders of worth." These orders of worth are subjected to a reality test through a rigorous evaluation of EU-US equivalence agreements with respect to organic standards and their possible implications for the local scale. At a local level, the research focused on "socially constructed criteria" from the communication between farmers and consumers that support "trust in organic farmers" as well as the market strategies used by organic producers for addressing consumer expectation on the quality of food produced.

At the global level, it seems that in this reconfiguration of the global space there are forces, probably from corporate interests, that are being imposed over the technical process of equivalence, as revealed by the fact that the USDA and the EU organic regulations are not equivalent at all. The research concludes that equivalence agreements could facilitate market access for exporters, but not necessarily guarantee genuine organic quality to consumers.

At a local level, I found a lack of effective 'connection' between producers and consumers for organic beef in Spain. The failure to develop and maintain this direct connection means that the producer does not receive consumer feedback on the meat attributes which consumers most appreciate. For producers such feedback could provide them with very important information such as locality, price, taste, and freshness that play an important role in the distinctiveness of organic over conventional products. My research revealed an urgent need to reconfigure this relationship, as building a trustworthy relationship with consumers is essential not only for conducting business but for the development and maintenance of an efficient and sustainable organic food network.

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My daugther Irene.

AUTHOR'S DECLARATION

I declare that the work contained in this thesis is my own and has not been submitted for any other degree or award. All sources are acknowledged as References.

Jesús Concepción Cabrera

CHAPTER 1

Introduction

Background

Geography matters in food now perhaps more than ever (Marsden & Murdoch 2006).

In Europe, agri-food geography is incresingly marked by consumer demand for quality food linked to different strategies in order to valorise local and/or regional food products (Boto & Phillips 2013; 2009). Food quality has been defined by different authors (Gellynck 2007) as both 'meaningless' and 'full of meaning', which is very ambiguous, if not contradictory (Becker 2000; Gralton 2005), but basically depends on the knowledge, information and background of consumers when they decide to purchase a food product (Becker 2000). Only a few people have come up with a reasonably consistent definition of quality (Schaeffer 1993, quoted in Murdoch and Miele, 1999). Therefore, quality is difficult to both define and theorize (Parrott, Wilson and Murdoch 2002).

There has been a 'turn' by consumers (the `quality turn´, as defined by Goodman 2003) away from industrial food provisioning and deterritorialization of food towards quality following consumer concerns over human health and food safety, the environmental consequences of globalized and industrialized agriculture and issues of animal welfare and fair trade (Winter, 2003). In this way quality can be defined as a "multidimensional concept" which comprises those elements not included in the conventional food system such as identifiable place of origin, traceability, aesthetic attributes and nutritiousness (Sonnino & Marsden 2006).

Consumer concerns about quality, along with growing consumer awareness about food safety and nutrition, are creating an 'alternative geography' of food (Morgan et al. 2006) and in many western societies these are the prime motivating factors for moving away from the homogenized products of the global agri-food industry to more 'local' and more 'natural' and 'quality' foods (Murdoch et al., 2000) to create this the new geography of food (Morgan et al. 2006), as well as the emergence of local or alternative food systems or networks (AFNs). AFNs represent a connection between different "clusters of a rural web" (Goodman, 2002),

which includes farmers, manufacturers, non-profit organizations, sellers and consumers joined through the process of production, food processing, distribution and consumption to provide a focus for notions of 'quality', 'place' and 'nature' (Goodman, 2003). AFNs significantly reconfigure the relationship between food producers and consumers (Marsden et al. 2000; Renting et al. 2003; Sage 2003).

Despite the global economic slowdown, consumers are demanding lower food prices (O'Doherty, et al. 2011) without impacts on food safety and quality attributes (Yamoah & Yawson 2014), which are closely related and are not easily distinguished by many consumers (Grunert 2005; van Rijswijk & Frewer 2008). This is due in part due to consumer uncertainty about the quality of products (Hansen 2005), and in part because food consumption patterns are rapidly changing in response to environmental, nutritional and health concerns (Tsakiridou 2009). Thus, van Rijswijk and Frewer (2008) examined how people in Europe from different backgrounds define and value food quality and found an overlap in quality and safety definitions. Quality was defined as taste, natural/organic and freshness, while safety was related to absence of risk or harmfulness (van Rijswijk & Frewer 2008). The lack of knowledge and information by consumers about organic food is one of main factors impacting on consumption of organic food in Spain (Aarset et al. 2004; Mesías et al. 2012; Robles et al. 2005), the focus of the present thesis. That is supported by the fact that there is not a unique concept of organic farming, and the legislation that regulates organic production is usually very difficult to understand, almost impossibly for non-specialists (Arbenz, 2012).

Organic production has been suggested as a means by which AFNs can provide for quality assurance and clearly identified, often local, sources in order to valorise local food products (Goodman 2002) as well as providing consumers with fresh, tasty and authentic food "while respecting natural life-cycle systems" (European Commission 2013c). Organic food systems may also contribute to reducing energy and other inputs in agri-food chains through local production and adoption of seasonal consumption habits (Amate and González de Molina, 2013) and in sustaining rural development (Marsden et al., 2000). Organic food systems as AFNs is territorially embedded and as such reflect and valorise (economic and socially) the distinctive characteristics of the rural areas where they are located (Hinrichs, 2000; Marsden et al., 1999; Renting & Wiskerke, 2010; Sonino, 2007).

Europe has more than 27% of the world´s land under organic production, and is ranked second by area after Oceania (table 1.1). Within Europe, Spain, the focus of this thesis, has the most land (1.5 million hectares) under organic production (Willer & Kilcher 2012), but paradoxically has the lowest organic consumption in the European Union (MAGRAMA 2012).

Table 1.1: World´s organic agricultural land including in-conversion areas: The 6 regions with the highest area of organic land.

Region	Organic agricultural land (ha)	Share of the global organic agricultural land
Oceania	12´144´984	32.8%
Europe	10´002´087	27.8%
Latin America	8´389´459	22.7%
Asia	2´778´291	7.5%
Northern America	2´652´624	7.2%
Africa	1´075´829	2.9%
Total	37´041´004	100%

Source: Pinckaers (2013)

Over the past decade, organic agricultural land in the EU-27 has more than doubled (Bendz et al. 2012) with the largest areas in Spain, Italy and Germany (Figure 3.1), accounting for 40% of the EU-27 organic area (Pinckaers 2013). In the case of Spain, this development has been favoured by the country's broad diversity of climates, soil types and ecosystems, giving it a major advantage over many other European countries (Carrera et al. 1982).

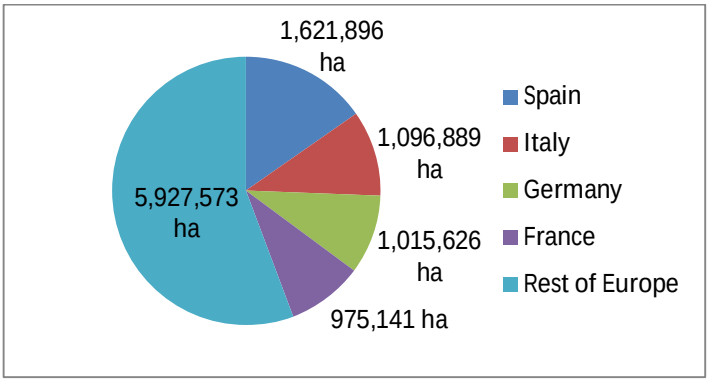

Figure 1.1. Countries with the largest areas in organic agriculture in the European Union in 2013.

Source: (Pinckaers 2013).

In 2013, there were in the EU 43.1 million hectares of organic agricultural land, including in conversion areas (Willer & Lernoud 2015). With 10.2 million hectares (figure 1.2), the EU accounts for 24% of the world's organic land (Willer & Lernoud 2015). However, this area represents only the 5.4% of total utilised agricultural area in Europe (Willer & Lernoud 2015) The EU organic sales has grown from 10.2 billion Euros in 2004 to 22.2 billion in 2013, which represent the 40% of the total global sales of organic food and drinks (Willer & Lernoud 2015).

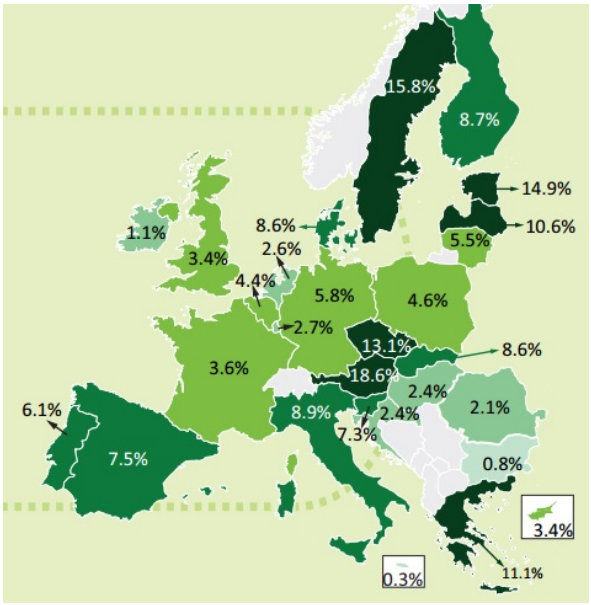

Figure 1.2. Percentage of organic Agricultural land in the European Union of the total of agricultural land.

Source: (Willer & Lernoud 2015).

Study aims

The primary aim of this thesis was to evaluate the interaction between the parameters that underpin the new geography of food at local and global scales using organic quality as the underpinning theme. The approach taken adopts some of the core elements of quality conventions theory in order to understand at the global scale the quality conventions that establish "orders of worth" (Boltanski & Thévenot 2006) . These orders of worth are subjected to a reality test (Thévenot 2009) through a rigorous evaluation of EU-US equivalence agreements with respect to organic standards and their possible implications for the local scale and the organic food system conceptualization. At a local level, the research focuses on "socially constructed criteria" (Marsden 1998) from the interactions between producers and consumers in order to evaluate the "worlds of justification." More specifically the research will evaluate consumer support and trust in organic farmers (Migliore et al. 2014) as well as the market strategies used by organic producers for addressing consumer expectations of organic beef quality. Because of the current situation of the organic meat market at the EU level and in Spain described above, I focused the research on the global/local approach to the organic beef market.

The case study approach methods is an empirical inquiry that can be useful for capturing the complexity of a single case within its context (Eisenhardt, 1989; Johansson (2003), when the boundaries between phenomenon and context are not evident; and in which multiple sources of evidence are used (Yin 2009; Vissak 2010). In this way, this method ensures that the issue is explored from different facets to be revealed and understood (Yin 2009; Stake (1995). The Case study approach permits the identification of further research needs (Halinen & Törnroos, 2005; Siggelkow, 2007) and the development of intervention (Woolcock 2013). The approach is applied not only in the social sciences, but also in "practice-oriented fields" such as environmental studies or business studies Johansson (2003).

Critics of the use of case study approach (Miles & Huberman, 1994) argue that it usefulness is limited to the exploratory phase of a research programme. Other critics state that as each case study is equal to one research observation, therefore hundreds of case studies are required to produce any (statistically) meaningful results (Vissak 2010) and there are concerns about researcher subjectivity and external validity (Willis, 2014). The approach is also highly labour

intensive (Miles 1979). However, the greatest concern aboput the use of the case study approach is the relative absence of methodological guidelines (Yin 2009).

I used a combination of a number of methods that allowed a better appreciation of the case study. The methods I employed in the case study included extensive literature review of the case study; listening to and analyzing the data obtained from group discussions; interviews of staff and producers of the cooperative Bioocop, and interviews to consumers participating in the Silleda fair. All these combined methods of data collection and analysis collectively gave me a better understanding of the case study giving me the opportunity to make some recommendations for further research.

The research takes a Case Study approach, the justification for which is based on:

1. The analisys of the technical issues of the equivalence agreement of the main international organic standards that facilitate the global quality conventions.

2. The direct social interaction between producers and consumers resulting in quality conventions.

The study seeks to achieve the following objectives:

- At a global level: to identify discrepancies between the main global organic programmes; The National Organic Program (NOP) of U.S. and the EU organic regulations.

- At a local level: to evaluate the relationship between consumers and organic producers; consumer awareness and trust on certification of organic food; and how retail strategies of producers address consumer expectation regarding organic certified beef.

The debate surrounding global and local scales in food systems

> Food spaces are integrated into global food provisioning while others are integrated into regionalized and localized relations. These variable integrations make for considerable diversity and competition in food space (Marsden & Murdoch 2006).

In Europe, genetically modified organisms (GMOs), animal welfare issues and food scandals such as Bovine Spongiform Encephalopathy (BSE) in the 1980s and 1990s and the more recent horsemeat contamination of food products (Yamoah & Yawson 2014) and outbreaks of disease such as Foot and Mouth in 2001 (Hagar & Haythornthwaite 2005) have provoked a 'crisis of trust' (Murdoch & Miele 2004) among consumers expressed as a discontent with the industrialization of agricultural production and food provisioning systems (Jansen & Vellema 2004) and a move towards AFNs often characterized by local production. However, what constitutes "local" is hard to define in practice. There is no legal or universally accepted definition of local food, although it clearly has a geographical dimension related to the distance between food producers and consumers (Martinez et al. 2010), but also depends on consumer perceptions which may differ in different places and cultures as well as between consumers and products (King et al. 2010). Thus, local food also may be defined by the place or region were the food is produced (Stræte & Marsden 2008) or who produced the food, or by the characteristics of intermediate stages of supply such as processing or retailing (Martinez et al. 2010).

Several authors identify AFNs as a new mode of agri-food governance, providing an alternative to conventional or mainstream food provisioning (Ilbery & Maye 2005; Renting et al. 2003; Sonnino & Marsden 2006b; Tregear 2011), which is dominated by big agricultural firms, both wholesalers and retailers, that operate globally (Goodman 2003; Higgins et al. 2008) and which are characterized by product standardization, specialization and concentration of the actors, globalized procurement and buyer-driven chains (Gereffi 1994).

AFNs have also been called "alternative agri-food initiatives" (Goodman 2003), "short food supply chains" (Renting et al. 2003) or "alternative food supply chains" (Ilbery & Maye 2005). AFNs have been further defined by (Jarosz 2008) in four major ways:

1) by shorter distances between producers and consumers;

2) by small farm size and scale and organic or holistic farming methods;

3) by the existence of food purchasing venues such as food cooperatives, farmers markets, and local food-to-school linkages;

4) by a commitment to social, economic and environmental dimensions of sustainable food production, distribution and consumption.

One of the concepts that have been used to describe the social and the ethical dimensions of AFNs is Polanyi's notion of "embeddedness" (Guthman 2008; Sonnino & Marsden 2006). Polanyi's thesis states that disembeddedness comprises (Vancura 2011):

1) the predominance of transactions and social interactions that are not submerged in social relationships but are based on economic self-interest, and,

2) the absence of social control over the economic processes of production and distribution.

However, even in a conventional market economy contemporary food chains are not totally disembedded from their local and regional contexts (Morgan et al. 2006), processes of disembedding being tensioned against processes of re-embedding in local socio-ecological conditions such as "nature" and "quality" aspects of food (Murdoch et al. 2000; Murdoch & Miele 1999). Thus, embeddedness in AFNs, refers to the re-placement of food within its social, cultural, economic, geographical and environmental contexts in response to the disembedding forces of conventional food networks (Goodman et al. 2012) and is a process for developing local and quality food products (Marsden et al. 2000) and new market relations (Renting et al. 2003). This new relationship of association and institutionalization (Sonnino & Marsden 2006) means that consumers know more about where their food comes from and that farmers, in particular small-scale ones, have a positive value added to their products by the elimination of profit-taking intermediaries, such as processors, distributors, retailers, etc. (Ilbery & Maye 2005; Sonnino & Marsden 2006). That relation between producers and consumers creates space for quality conventions that include aesthetic, ethical, territorial and

cultural dimensions (Ilbery & Maye 2005; Miele & Murdoch 2003; Murdoch & Miele 2004; Winter 2003) which are characterized as having the potential for higher levels of trust and reciprocity (Hinrichs 2000; Jarosz 2000).

The local organic food chain and the social embeddedness

> *At the heart of the notion of embeddedness is the emphasis laid on the necessity of social relations to all economic transactions* (Winter 2003a).

As stated above, there is no consensus or a universally accepted definition (Martinez et al. 2010a) of what local food is. In theory, local food is a geographical concept referring to food produced near its point of consumption (Peters et al. 2008). However, local food systems have also been described as "local food networks" (Jarosz 2000), as "shortened food chains" (Feagan 2007) or as an "alternative to globalised food systems" which have emerged around the world since the 1970s (Lehtinen 2012). Note that the terms "local" and "short" remain undefined.

Morris & Kirwan (2011) claim a clarified definition of embeddedness for a better understanding of the ecologies within the farm context reflecting the change in the relationship between the economic actors and the natural economic activity. They suggest that using their clarified concept of ecological embeddedness, further research should pay attention to four dimensions they considered associated with the way that producers and consumers relate to ecological embeddedness (table 1.2).

Table 1.2: The four dimensions of ecological embeddedness described by Morris and Kirwan (2011).

1.Understanding	A. The way in which producers understand the role and importance of ecological relations within their farming system and food enterprise, and in particular, the environmental values that underpin their use of environmentally beneficial modes of food production. B. The way in which producers conceptualise and understand the relationship between the ecological conditions of production and the characteristics/qualities of the food products they produce.
2. Realising	The ways in which producers attempt to realise ecological benefits within their production systems through specific practices. This includes their suitability to localised ecological conditions, the selection of particular breeds of cattle and sheep, and the ecological management of landscape features such as watercourses.
3. Utilising	The ways in which information about the ecological conditions of production is utilised to influence the exchange process. This includes promotional materials that make links between the ecology of production and the eating qualities of the product on sale.
4. Negotiating	The ways in which consumers negotiate the ecological information they receive about food produce, that in turn influences their purchasing decisions and hence the exchange process.

Local food typically involves small farmers and short supply chains in which farmers also perform marketing functions, including storage, packaging, transportation, distribution and advertising (Martinez et al. 2010b). In this respect, the EU Council Regulation (EEC) No. 2081/92 of 14 July 1992 on the Protection of Geographical Indications and Designations of Origin for Agricultural Products and Foodstuffs defines the Protected Designations of Origin (PDO) and states that a product must meet two conditions:

- "the quality or characteristics of the product must be essentially or exclusively due to the particular geographical environment of the place of origin";

- "the production and processing of the raw materials, up to the stage of the finished product, must take place in the defined geographical area whose name the product bears."

In Europe, organic agriculture has developed through local farmer knowledge and experience (Vogl et al. 2005). Organic farming methods prefer cultivars and breeds which are locally-adapted, the closing of nutrient cycles and a preference for local resources (EUROPEAN COMMISSION 2007a; Padel & Lampkin 2011). However, at a national policy level there is a lack of clarity about what constitutes local food (Pearson et al. 2011) and there is a need for food standards to address local diversification with a new ethical approach allowing regional definitions, local identification and innovations (Vogl et al. 2005).

Local food production can contribute to a better connection between producers and consumers (JAFFEE et al. 2004; Raynolds 2002, 2004) which can reduce food miles which is appreciated by many consumers (Ricketts Hein 2006). Consumers also want to know where the food comes from and how it is produced (Pretty 2004). Therefore, one important aspect of local systems as opposed to globalised systems is the potential "symbiotic inter-connectedness" between organic farms and "the same locale" (Marsden & Sonnino 2008) promoted by the development of markets for local farmers which benefit not only the locale but the region as a whole (Sonnino & Marsden 2006a).

The connectivity, reciprocity and trust define the social embeddedness (Hinrichs 2000) which "underpins" local markets (Hinrichs 2000; Thome 1996). Farmers´ markets may be embedded in the way that they can generate genuinely valued social ties between producers and consumers (Hinrichs 2000) far removed from the homogenised products of the globalised agri-food industry (Winter 2003). This process of social interaction or "ecological entrepreneurship" can play an important role in incorporating other actors and innovations into the network for the development of "new interfaces" between producers and consumers (Marsden & Smith 2005). Thus, the concept of embeddedness allows the distinction between alternative food networks from conventional chains (Sonnino & Marsden, 2006), where "alternative" is considered as a redefinition of market and non-market relationships between producers and consumers (Goodman 2003; Sage 2003; Winter 2003).

The research of Sonnino and Marsden (2006a) has permitted a more holistic and deeper study of embeddedness, as they separate this concept into two main components: horizontal and vertical. Horizontal embeddedness involves local actors, producers, consumers, their associations and communication at a local level while vertical embeddedness refers to the

wider institutional, political, and regulatory context. As such, embeddedness is an important tool for analysing the development of local markets, as it not only describes the economic interactions of consumers and producers, including mutual knowledge, personal ties and trust which are often absent in the impersonal global food market (Hinrichs 2000; Sage 2003), but also in the definition of quality which is understood as social and negotiated and includes origin, aesthetic attributes, taste, health as well as safety and environmental impact (Murdoch et al. 2000; Sonnino & Marsden 2006).

Food standards

Standards become relevant because they are linked to a verification process that makes food supply chains legible, traceable and more reliable (Guthman 2004a). As such, food standards have become a prevalent part of the governance of the global agri-food sector (Busch et al. 2005; Henson & Humphrey 2009) and are under continuous development, mainly influenced by the implementation of neoliberal policies and trade liberalization (Hatanaka 2008) and by the continuous growth in the number of food quality schemes. Traditionally, government institutions have been responsible for oversight of the implementation of food safety standards and food quality attributes. However, the globalization of the agri-food system, the consolidation of the food retail industry and the rise in private retailer standards have precipitated a shift in responsibility for this task to third-party certifiers (Hatanaka 2008). A third-party certification (TPC) is a neutral and independent third-party audit by a certifying party (certification body) with the aim of assessing the compliance of a certifiable party (a farm, a processor or an importer) with a standard (Garon & Theuvsen 2009).

The evolution of private standards through third-party certification (TCP) has raised profound questions about the role of public and private institutions in governing food safety and there are concerns about their impacts on global agri-food markets (Henson & Humphrey 2008). Currently, despite the existence of Food and Agriculture Organisation (FAO), the food chain is governed by both public and private standards (Busch 2011). This quality control over the supply chain is affecting the whole agri-food system from agricultural production through to processing, including the use of technologies and retail channels (Fulponi 2005; Timmer 2009).

For the implementation of a certified standard, a TPC using audits is employed. Thus, a TPC constitutes a significant regulatory mechanism in the global agri-food system (Hatanaka et al. 2005). During that certification process it must be ensured that specific production and handling standards are followed (Hatanaka et al. 2005; Lampkin et al. 1999).

One of the alternative models for quality assurance that is appropriate for different geographic areas and circumstances is represented by organic certification, which certifies producers as complying with the principles and code of practice of organic agriculture. In Europe the most widely applied organic standard is Council Regulation (EC) No 834/2007 (EC 2007) which guarantees that when consumers buy products bearing the EU organic logo they can be confident that:

- the product is in full conformity with the conditions and regulations for the organic farming sector established by the European Union. For processed products it means that at least 95% of the agricultural ingredients are organic;
- the product complies with the rules of the official inspection scheme;
- the product has come directly from the producer or preparer in a sealed package;
- the product bears the name of the producer, the vendor and the name or code of the inspection body.

As stated by the Food and Agriculture Organization of the United Nations (FAO), it is important to harmonise quality standards for better consumer protection and to facilitate international trade (FAO/WHO 2004). In that regard, the EU organic regulation is one of best examples of quality standard harmonisation and globalisation. The EU has reached agreement to recognise other organic standards and laws equivalent to EU organic regulations including EU-Canada (Holmes 2001), the EU-U. (Alonso 2012), the EU-Switzerland and EU-Japan standards (European Commission 2012). The main objective of these mutual recognition agreements is to minimise trade barriers (Devereaux et al. 2006) caused by differences in regulatory systems (Elvestad & Veggeland 2005). In the case of EU-US, the effect is to provide regulations for the two largest organic producer markets in the world, valued at approximately US$55 billion (European Union 2010).

Conventionalisation of organic farming

There is an open debate on how developments within organic farming should be understood and defined (Darnhofer et al. 2010) as organic farming has a new form of representation (Tomlinson 2008), "conventionalisation" (Guthman 2004; Hall & Mogyorody 2001; Lockie & Halpin 2005). Several authors (table 1.3) have explained the trend of this new form, where the structure and the ideology of the organic sector are seen increasingly to resemble that of the conventional food and farming sector (Darnhofer et al. 2010; Tomlinson 2008).

Table 1.3: Empirical trends of conventionalisation of organic farming observed by different researchers.

Trends	Authors (year)
• Concentration of capital among fewer, larger organic producers and market intermediaries	Lockie et all, 2000; Lockie and Halpin, 2005; Buck et al 1997; Guthman, 2004; Smith and Marsden, 2003.
• Long distance sourcing	Bonano et al, 1994
• Organic practices comply with the regulations, but not with the principles of organic farming. Planting of single crops with minimal temporal of spatial rotation.	Darnhofer et al. 2010, Guthman 2004
• Erosion of standards focussed on market access • Appropriationism: the attempt by industrial capital to replace previously natural production process by industrial activity. Commodity chains were being appropriated by agribusiness firms without organic agronomic and marketing practices.	Lockie et all, 2000; Guthman, 2004 Goodman et at, 1987, (Buck et al. 1997)
• Substitutionism: substitution of natural products by industrial ones. For example, processors making substitutions to non-organic ingredients due to higher cost.	Goodman et at, 1987, (Schumilas 2011)

Conventionalization is a process whereby organic agriculture progressively acquires the characteristics of industrial agriculture (Constance et al. 2008). Hall and Mogyordoy (2001,

page 399) argue that "organic farming may become more less a modified version of modern conventional agriculture: bigger farms, replacement of labour by mechanisation, dependency on industrial inputs, export market orientation rather than local. An issue surrounding the conventionalisation hypothesis is organic conversion (Darnhofer et al. 2010), particularly when the purpose for the conversion is primarily economic and farms can produce high-value commodities which are organic certified, attracting farmers whose organic practices do not comply with agroecological and organic principles (Oelofse et al. 2011). A critical point here is that organic farming in Europe is subsidised so that public funding is allocated to support the contribution of organic farming to environmental protection and rural development (Darnhofer et al. 2010). The process of conventionalisation of organic farming has been favoured by organic regulations. For example, the National Organic Programme (NOP) in United States omits all references to health, labour, climate change or equity, and defines conformity to organic farming methods and the use of allowed inputs, which reduces the barriers for conventional farmers in the US and agribusiness companies presenting themselves as organic (Gibbon, 2008). Conventionalization is also associated with "bifurcation" a process through which organic agriculture adopts a dual-structure: small-scale producers and larger, industrial-scale producers (Constance et al. 2008; Rosin & Campbell 2009).

In this debate, there are two opposing tendencies. The first argues that organic agriculture is indeed facing "co-option and corruption associated to with agri-industrialisation" (Lockie & Halpin 2005; Tomlinson 2008) and the second is the resistance of organic production that ensures tradition, community and place (Goodman 1999, Smith & Marsden, 2003). Rosin and Campbel (2009) consider the move of corporate actors into the organic food system as one of several alternatives of organic quality, which depends on the "complicity" of consumers, producers and processors. More detailed discussion on this will be made in chapter four, conclusions.

The role of organic food in the geography of food

> Organic production has to maintain its innovative role, in influencing non-organic production with its rules and the techniques applied.

Action Plan for the future of Organic Production in the European Union (European Commission 2014a)

For the International Federation of Organic Agricultural Movements (IFOAM), organic food comes from products processed by biological, mechanical and physical methods in a way that maintains the vital quality of each ingredient and the finished product (IFOAM, 2006). For EU member states, organic quality is defined as food produced by the methods established in Council Regulation (EC) No 834/2007 of 28 June 2007 (on organic production and labelling of organic products). According to this Council Regulation, organics are processed without the use of a genetically modified organism (GMO) and ionic radiation, with limited use of additives and processing aids and without the use of chemical processing techniques.

Since the EU organic regulations came into force in 1993, they have played a decisive role in the development of the organic market not only in Europe but also worldwide because many non-EU countries have used these regulations for their own standards. In Europe, the rules for organic farming are laid down by:

- Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/9.

The rules on how to implement these regulations for organic production, processing, distribution, labelling and controls have been adopted in the EC regulation:

- Commission Regulation (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control (European Commission 2013c).

EU agricultural policy could encourage more farmers to become organic producers and the Action Plan for the Future of Organic Production in the European Union (table 1.4) calls for an increase in efficiency in the use of the available support measures in rural development programmes by taking into account analysis of the current situation of the organic farming sector and market potential in the given Member State or region. There is an obligation on Member States to foresee a minimum spend of 30% of the total contribution from the

European Agricultural Fund for Rural Development on measures dealing with environmental and climate-related issues, including the development of organic farming (European Commission 2014b).

Table 1.4: Actions for the Future of Organic Production in the European Union to be implemented in the Rural Development Programme of each EU Member State.

Action 1: The Commission will publish an informative document in 2014 intended for organic farmers, processors, and retailers, presenting the rules applicable to organic production, processing, and trade, including the rules applying to conversion as well as support measures in the CAP.
Action 2: The Commission will include organic farming as a specific theme in the forthcoming call for proposals for support for information measures intended for farmers and producers relating to the common agricultural policy (CAP).
Action 3: The Commission will continue to raise awareness on the possibilities offered by the regulation on information and promotion activities in favour of agricultural products in internal market and third countries.
Action 4: The Commission will conduct: Periodical surveys on consumers' awareness of the EU organic logo and specific survey on consumers' awareness, confidence in and understanding of the EU organic farming scheme.
Action 5: The Commission will revise its Green Public Procurement criteria for Food and Catering Services by the end of 2015 and develop specific information material that would exemplify the use of organic farming requirements in public procurement.
Action 6: The Commission will organise a conference in 2015 to identify research and innovation priorities for producers in relation to the challenges that may result from the future organic production rules.
Action 7: The Commission will take into account in the relevant Horizon 2020 formats: the need to strengthen research, exchange and uptake of research results through specific measures such as research and innovation actions.
Action 8: The Commission will publish regular reports on organic production in the EU, containing in particular information on surfaces, holdings involved in organic production as well as main production

sectors.

Action 9: The Commission will: Analyse the distribution of added value along the food supply chain and obstacles to join the organic sector through a survey on the attractiveness of the organic scheme, in particular for small farms, and small and medium sized enterprises in the food manufacturing sector.

Action 10: The Commission will encourage Member States to explore synergies and simplifications between activities by Accreditation Bodies and Competent Authorities. The Commission will liaise as appropriate with Accreditation Bodies responsible for the surveillance on Control Bodies in Third Countries.

Action 11: The Commission will propose to the TARIC Committee to integrate the organic production legislation requirements in the TARIC database.

Action 12: The Commission will develop: A system of electronic certification for import, as a module integrated into the TRACES system (future information Management System for Official Controls – IMSOC) by 2015;

Action 13: The Commission will assist Member States in developing and implementing an organic fraud prevention policy, through: Targeted workshop(s) to share lessons learned and good practices, and the development of compendia/casebook of cases.

Action 14: The Commission will continue to support and cooperate with trade partners in developing countries in the framework of the EU development policy.

Action 15: The Commission will consider increased convergence of standards among leading organic partners and explore the possibility of a plurilateral agreement.

Action 16: The Commission will explore different possibilities to gather and to analyse statistical data on volume and value of trade with third countries, in order to improve knowledge of potential markets for the EU organic sector.

Action 17: As to Codex Alimentarius, the Commission will support development of rules on aquaculture, and will explore the feasibility of starting works on organic wine rules.

Source: (European Commission 2014a)

The new EU rural development policy enables governmental financial support for the development of organic farming for providing a specific market in response to consumer demand for healthy food as well as contributing to the protection of the environment, to animal welfare and to rural development (Council Regulation, 2007). In other words, the policy could provide a sound foundation and framework for the construction of alternative organic food systems to challenge the current conventional agri-food system. Therefore "embedding" here is the key word, where organic agriculture could contribute significantly to rural development and, conversely, the Rural Development Programme could contribute significantly to organic agriculture development. In Europe, each country has a Rural Development Programme funded by the European Agricultural Fund for Rural Development (EAFRD) as well as from the National Government (European Commision 2011).

The promotion of the local organic food system is consistent with the valorisation of local traditions and conservation of the environment, including crops and animal breeds (Vaarst & González-García 2012) and where greater emphasis is placed on soil fertility and crop rotations as well as the use of renewable resources, recycling and self-sufficiency (Sumelius 2010). In this way the organic food system contributes to the role of government in greening the economy, especially now that the global food crisis has been intensified by reduced availability of water, the expanding conversion of food crops to biofuel production, price volatility as result of speculation, shortfalls related to climate stresses as well as the over-exploitation of agricultural resources and declines in biodiversity (Katsarova 2012; Kwasek 2012; Swinnen et al. 2013).

The EU greening agricultural policy

In the economy of the European Union, agriculture plays a small role, only accounting for about 2% of GDP and 5% of EU employment. However, given its impact on the environment and natural resource use, its role is actually more significant, accounting for 45% of EU total land use for food and over 30% of total water use (Parris 2001). Therefore the "green economy" concept is an opportunity to change the way society manages and interacts with the environment because the current economic model based on increasing use of resources and emission of pollutants cannot be sustained (Iavicoli et al. 2014). The term "greening" in agriculture means the protection and enhancement of biodiversity, sustainability in food

production and responsibility in the use of natural resources (Singh et al. 2014). The "greening" process has been driven firstly by the Common Agricultural Policy – CAP; a system of subsidies and support programmes for agriculture operated by the European Union introduced in 1962 that combines direct payments to farmers together with price/market supports (European Commision 2011) and secondly by consumers demanding more sustainable food production and sustainability initiatives along the agri-food chain (Singh et al. 2014). Nowadays Greening the Economy has a special relevance in Europe, as the European Community is facing a serious crisis that has two faces which are intertwined and which reinforce one another: economic and ecological (Ahtonen & Chiorean–Sime 2012).

The role of the CAP is to provide a policy framework that supports and encourages producers to address identified challenges of the sector (European Commission 2013b):

- *economic* (including food security and globalisation, a declining rate of productivity and growth, price volatility, pressures on production costs due to high input prices and the deteriorating position of farmers in the food supply chain),

- *environmental* (relating to resource efficiency, soil and water quality and threats to habitats and biodiversity),

  In addition, there is a third challenge of *territorial* (where rural areas are faced with demographic, economic and social developments including depopulation and relocation of businesses).

The objectives of the CAP are (European Commission 2013b):

- viable food production;

- sustainable management of natural resources;

- climate action and balanced territorial development.

However, supporters and critics of CAP disagree on how to achieve these objectives (table 1.5)

Table 1.5: Critics and supporter arguments on the achievement of the objectives of the Common Agricultural Policy (CAP) reform.

What do the critics say?	**What do the CAP supporters say?**
The CAP has provided very little benefit to nature, due to dilution of the policy during the negotiations on the definitive version. The CAP encourages European agri-businesses to export huge quantities of food worldwide that poor farmers cannot compete with on price. The CAP is seen as part of an unfair trade system rigged in favor of the richer countries. The CAP is too expensive given that agriculture generates just 1.6% of EU GDP and employs only 5% of EU citizens. Farmers complain that other players in the food chain, such as distributors and commodity speculators, reap the rewards while their income is falling. They want the EU to improve farmer bargaining power and make market data more transparent. Allocation of the biggest payments go to a small number of large or resource-intensive farms.	The CAP permits the maintenance of rich diversity in rural areas and keeps people on the land. The CAP provide financial incentives to attract younger people into farming. Europe surpluses can ease food shortages in the developing world.

Source: (BBC News Europe 2013; Katsarova 2013; Wageningen UR News 2014; Was et al. 2014)

The CAP is supported by four legislative texts which reflect political agreement between the European Commission, Agriculture Ministers of the EU Member States (in the Council) and the European Parliament:

1. Rural development: Regulation 1305/2013.

2. Horizontal issues, such as funding and control: Regulation 1306/2013.

3. Direct payments for farmers: Regulation 1307/2013.

4. Market measures: Regulation 1308/2013.

There is also transitional provision with regard to the application of the above for basic regulations which constitute Regulation 1310/2013.

The CAP reform process within the EU has also introduced agri-environmental measures (Regulation No. 2078/92) to encourage the adoption of environmentally friendly farming practices and the preservation of biodiversity and natural habitats, such as the introduction of organic farming and integrated crop management. The expansion of these farming systems explains in part reductions in EU pesticide use (Parris 2001). However, in the CAP reform introduced in 2013, three mandatory 'greening' activities were proposed as requirements for farmers (table 1.6) who need to invest time and resources in maintaining permanent grasslands, practice crop diversification and manage ecological focus areas to benefit from direct payments (European Commission 2011).

Table 1.6: The three mandatory 'greening' activities proposed in the Common Agricultural Policy (CAP) reform as requirements for farmers.

Permanent grassland.	Member States shall designate permanent grasslands that are environmentally sensitive and that need strict protection including peat and wetlands. The ratio of the land under permanent grassland in relation to the total agricultural area declared by the farmers may be reduced but not more than 5% compared to a reference ratio to be established in 2015.
Crop diversification.	If arable land of the farmer covers between 10 and 30 hectares there shall be at least two different crops on that arable land and the main crop shall not cover more than 75% of that land. For more than 30 hectares, there shall be at least three different crops and the main crop shall not cover more than 75% of that arable land and the two main crops together shall not cover more than 95%. Farms up to 10 ha are exempted.
Ecological focus areas (Preservation of permanent grassland).	Areas equivalent to at least 5% (after 2016, an increase to 7% will be considered) of a farmer's arable land is used for ecological purposes. Habitats and features that would be eligible to fulfil the EFA requirement may include: fallow land, terraces, landscape features, buffer strips, and areas afforested under Pillar 2.

Source: adapted from (European Commission 2011; Singh et al. 2014; Was et al. 2014)

Organic farming has been also considered as green (by definition) in the new CAP for 2014-2020. However, the definition of organic as stated in the EU Organic Regulation 834/2007 is a green definition itself:

Organic production is an overall system of farm management and food production that combines best environmental practices, a high level of biodiversity, the preservation of natural resources, the application of high animal welfare standards and a production method in line with the preference of certain consumers for products produced using natural substances and processes (European Commission 2007b).

Thesis structure

The thesis is presented in the form of scientific papers. **CHAPTER 2** focuses on the analysis of the quality convention between the EU and US governments for the equivalence agreement between the EU Regulation for organic farming and the National Organic Program (NOP) of USDA following a mutual recognition by these bodies that the regulations are equivalent. For the comparison of both standards, the research uses an adaptation of the Equivalence of Organic Standards and Technical Regulations (Equitool) methodology developed by the International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF). **CHAPTER 3** evaluates marketing strategies of producers based on certification according to organic standards, which includes a case study of a local meat quality production system to evaluate how farmers address consumer expectation regarding organic certified beef. This chapter also evaluates the relationship between consumers and organic producers and comprises a consumer survey study to explore and describe consumer preference for organic food in a regional context and to determine and describe a possible relationship between consumer characteristics and their knowledge and trust in organic certification. **CHAPTER 4** will discuss the key findings, the trends observed in the previous chapters and limitations of the study. This chapter will also draw some general recommendations for improvement that could contribute to the academic and policy debate on organic production, marketing, and quality control at local and global scales.

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CHAPTER 2

Quality conventions in the global organic market: the case of the EU-USDA equivalence agreement for organic meat production.

Declaration

Within this chapter, there are many instances where regulations, standards, articles and definitions are cited verbatim from their original sources to avoid ambiguities. The sources are acknowledged in the text, but they have not been placed in quotation marks or otherwise highlighted for the sake of readability of the text.

Abstract

This study outlines the current situation of organic standards applied in the European Union (EU) and United States (US) regarding beef production. The US as well as the EU have their own regulatory schemes applied to labelling, certification and trade of organic food. This study focuses on the analysis of the quality convention between the EU and US governments for the equivalence agreement between the EU Regulation for organic farming and the National Organic Program (NOP) of USDA following a mutual recognition concluded in February 2012 that will expand market access for organic producers by reducing double requirements of certification and avoiding long-lasting bureaucratic procedures. For the comparison of both standards, the research uses an adaptation of the Equivalence of Organic Standards and Technical Regulations (Equitool) methodology developed by the International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF). The benchmarking study seeks to establish whether and to what extent the NOP standard addresses the relevant and defined articles of the EU Regulation. The aim of this chapter is to analyse the differences and potential discrepancies between Council Regulation (EC) No 834/2007 and the US National Organic Program (NOP) regarding beef production to address these two questions and also to identify possible implications of this global quality convention in the new geography of organic food. The analysis revealed that there are several technical

differences between the two standards that indicate that they are not in fact equivalent. This is significant because recognition of equivalence between standards allows organic products to be accepted as fulfilling the regulatory requirements of importing countries. It is clear from my analysis that organic meat presently imported from the United States into Europe does not fully comply with Council Regulation (EC) No. 834/2007 of 28 June 2007 on organic production and labelling of organic products. Finally, the study insists on the necessity of understanding importance of the emerging issues from organic equivalency in relation to organic trade between the US and the EU and argues that, in effect, the NOP-EU regulation has led to a lowering down of the EU Organic Regulation in the existing equivalence agreement. Therefore specific animal welfare and safety issues regulated into the EU organic legislation are not meet by organic meat imported into the EU.

Introduction

> There are established standards for professional accreditation, the environment, consumer products, animal welfare, the acceptable stress for highway bridges, healthcare, education, and for almost everything.
>
> Lawrence Busch (Busch 2011).

The main reason for the recent increased interest in organic agriculture is its social and economic benefits, including the mitigation of climate change, reducing desertification, the preservation of biodiversity, the contribution to sustainable development and the promotion of animal and plant health (Chandra 2009). Organic agriculture is also considered ecosystem-friendly because of its emphasis on minimum tillage and reduced use of pesticides, herbicides and synthetic fertilizers (Morguera et al. 2012). There is a growing interest by consumers and markets worldwide in organic products which facilitate access to new trade opportunities through internationally recognized certification standards (Morguera et al. 2012). A key element in the development of organic food systems has been organic standards, extended internationally through the International Federation of Organic Movements (IFOAM). This organization was created in 1972 and defined organic farming in terms of farm management practices, including the use of natural fertilization methods and the use of adapted plants and animals resistant to diseases (Raynolds 2004). The organic agri-food system has been

transformed from local coordinated networks of producers and consumers to a globalized system of regulated trade and standards and with "socially and spatially distant sites" of production and consumption (Raynolds 2004). However, variation in standards from country to country and the proliferation of standards can increase the cost and complexity of trade, thus making it less efficient (UNFSS 2013). In order to reduce such barriers, the Food and Agriculture Organization of the United Nations (FAO), has worked in partnership with IFOAM and The United Nations Conference of Trade and Development (UNCTAD) initially through a conference in Nuremberg in 2002 called "The Organic Guarantee System: the need and strategy for harmonization and equivalence". A significant outcome of this "quality convention" has been the creation of the International Taskforce on Harmonization and Equivalence in Organic Agriculture (ITF), comprising representatives from ministries of agriculture and trade as well as actors in the field, with the main objective being to facilitate international organic trade, especially for developing countries (Derkx 2013). ITF has the following specific objectives:

1. To review existing organic agriculture standards, regulations and conformity assessment systems including:

- their impact on international trade in organic agriculture products;
- models and mechanisms of equivalency and mutual recognition;
- the extent of international harmonisation.

2. To develop a follow-up project "Global Organic Market Access", which aimed to create greater awareness of the need for increasing organic market access and to disseminate the recommendations and tools of the ITF and facilitate their implementation (Derkx 2013).

According to the Organic Standard Journal (Örjavik 2013), there are 576 certification bodies worldwide (Table 2.1) certifying organic products, with numbers of certifiers increasing, especially in Asia (an increase of 22.3% during the period 2011-2012). The largest increase is in South Korea. Europe is ranked second with 213 certifiers, followed by North America (72) and Africa (19).

Table 2.1: Number of bodies involved in inspection and certification of organic food in different regions of the world.

Regions	*2008*	*2009*	*2010*	*2011*	*2012*
Africa	10	10	12	19	19
Asia	157	164	165	179	222
Europe	177	180	214	213	213
Latin America	48	47	51	51	38
North America	78	76	78	74	72
Oceania	11	12	12	13	12
Total	481	489	532	549	576

Source: (Örjavik 2013).

Within Europe (table 2.2), Germany (32) and Spain (28) head the list, followed by Romania (17) and Italy (13). Interestingly, Spain is the country with the largest organic agricultural area (1.6 million hectares), followed by Italy (1.2 million hectares), Germany and France (Huber 2007).

Table 2.2: Countries with the most bodies involved in inspection and certification of organic food in different regions of the world.

Countries	*2010*	*2011*	*2012*
South Korea	33	33	76
Japan	59	61	61
USA	57	51	49
Germany	32	31	32
Spain	27	28	28
China P.R.	27	28	24
Canada	21	23	23
Romania	18	17	17
Italy	15	13	13
Poland	11	11	11
Bulgaria	10	10	10
France	6	7	10

Source: (Örjavik 2013).

In terms of organic certification programmes (table 2.3), the EU organic regulation (EC 834/2007, EC 889/2008) with 1857 approvals and the National Organic Program of USA with 1253 approvals are clearly the driving standards in the organic sector.

Table 2.3: Development of main organic certification programmes operating in different regions of the world.

Years	*IFOAM*[1]	*Japan*[2]	*EU*[3]	*Canada*[4]	*USA*[5]
2010	32	100	251		128
2011	30	99	297	107	129
2012	33	99	342	96	283
Total	298	817	1857	203	1253

Source: (Örjavik 2013).
[1] *International Federation of Organic Movement.*
[2] *Japanese Agricultural Standard.*
[3] *EU organic regulation (EC 834/2007- EC 889/2008).*
[4] *Canada Organic Regime.*
[5] *National Organic Programme.*

Animal welfare issues and their relation with quality attributes

One of key elements of organic production is that animal welfare standards are higher in organic than in non-organic production systems and that synthetic chemicals that are prohibited such as the use of antibiotics and/or growth hormones (Sutherland et al. 2013). Animal welfare in organic production should guarantee that animals must have regular access to pasture and the outdoors, and may not be fed with Genetically Modified (GE) feeds (European Commission 2007). Farmers in organic production should implementate animal health plans to improve animal health and welfare and to reduce the use of veterinarian medicines (Sutherland et al. 2013).

There is a growing concern for many consumers in Europe about animal welfare (Blokhuis et al. 2008b; Martelli 2009) and this is becoming increasingly recognised as an important attribute of food quality (Blokhuis et al. 2008a; Quintili & Grifoni 2004) and particularly for beef products (Veissier et al. 2007, Fontes et al. 2008). The key issues that link animal welfare to organic quality attributes are (Blokhuis et al. 2008b):

- The impact of animal welfare (health status) on the quality of animal products;
- The impact is via citizens who have a strong commitment to animal welfare and this has led to increasing EU policy in the area;
- Consumer concern about the welfare quality of the products bought.

In this regard, the European Union policy for food safety aims to ensure high levels of food quality and animal health as well as animal welfare and protection. There is also an increasing number of animal welfare standards in the European community that go beyond the legal minimum, some of which are retailer-led; others founded by producer organizations (Veissier et al. 2008b).

The White Paper on Food Safety adopted by the European Commission in 2000 was designed to promote the health and welfare of animals and recognized that animal welfare issues need to be fully integrated into food policy, in particular those related to the quality and safety of animal products intended for human consumption (European Commission, 2000).

According to Veissier and others (Veissier et al. 2008b), differences between welfare standards reflect higher national legal requirements, higher quality industry schemes, organic production schemes and specific welfare-friendlier schemes. However, the communication of these higher welfare standards to consumers through the use of a quality assurance scheme logo on a product or packaging claims is not always successful (Veissier et al. 2008a).

A theoretical approach

Standards cover a collection of technical specifications of a product established by regulation or authority which in the case of agricultural standards can include shape, size, weight, safety, authenticity, energy, nutritional content and organoleptic quality attributes (Busch 2011b; Reardon & Farina 2002). There is a growth in the number of public food standards "as a political economy response" to the *financial, technical, and institutional constraints* "being imposed by international trade agreements" on traditional markets (Swinnen & Vandemoortele 2011, italics added). The main objectives of such standards is product differentiation derived from the trend towards quality-based competition in agri-food markets (Busch 2000; Busch & Bain 2004). This standardized differentiation has increased in scope and has become part of a larger Tripartite Standards Regime (TSR), which consist of interrelated sets of standards, certifications and accreditations (Busch 2010).

Governments have traditionally played the major role in establishing minimum requirements of food standards (OECD 2006) and seek to reduce trade distorting effects of diverse food quality standards. This "regulatory rapprochement" (Busch 2010; Caswell & Hooker 1996; Hooker & Caswell 1999) operates on three regulatory levels according to the level of cooperation between countries:

- **Co-ordination:** attempts to minimise differences in food quality regulations between countries, for example, through adoption of voluntary international codes of practice.

- **Equivalence or mutual recognition:** the acceptance of different forms of food quality standards amongst countries as being equivalent.

- **Harmonisation of standards**: involves the standardisation of food quality regulations between countries, for example, through the adoption of international standards.

In February 2003, UNCTAD, FAO and IFOAM attempted a "regulatory rapprochement" for addressing trade-restrictiveness by launching the International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF) (UNCTAD-FAO-IFOAM 2006). In the case of the European Union and the United States, the main objective of the "regulatory rapprochement" was to get a better understanding of each other's system and to investigate opportunities for harmonization, recognition, equivalence and other forms of cooperation (UNCTAD-FAO-IFOAM 2013).

The ITF produced a series of concrete recommendations on how to reduce barriers to organic trade and to facilitate their uptake and developed two practical tools:

- the International Requirements for Organic Certification Bodies (IROCBs).

- a guide standardizing the equivalence assessment process for organic production standards (EquiTools, later supplemented by the Common Objectives and Requirements of Organic Standards – COROS).

However, although this project has been in existence since 2009, uptake of the ITF tools has remained rather limited to date (D. Norman, personal communication). Thus, in terms of actually reducing the trade-restrictive effects of regulatory multiplicity, relatively little tangible progress have been achieved.

Convention Theory originated in France in the mid-1980s (Allaire & Boyer, 1995; Boltanski & Thevenot, 1991; Eymard-Duvernay, 1995; Sylvander, 1995) and has contributed to agri-food research (Daviron, 2002; Murdoch et al., 2000; Ponte, 2002a; Raynolds, 2002). Conventions Theory proceeds from the assumption that any form of coordination in economic, political and social life such as that which exists in standards equivalence agreements "requires agreement among the participant" institutions (Morgan 2006, italics added) (Gomez, 1994; Orléan, 1994; Eymard-Duvernay, 2006) which act together "through mutual expectations" (Salais & Storper 1992).

Convention Theory is formulated on the assumption that norms, conventions, organizations and institutions ‘‘determine the content and the form of the production and circulation of commodities’’ (Wilkinson 1997) and for it to function in the market there must exist a common ‘language’ between participants (Salais and Thévenot 1986; Boltanski and Thévenot 1989). However, when confrontation occurs between different evaluations criteria (of quality) this can be resolved by comparing them through a "principle of equivalence *or mutual recognition*" Boltanski and Thévenot 1989. In such equivalence conventions, experts advising governments should be responsive to public demand to guarantee a democratic governance of such equivalent or mutual recognised standards; therefore experts are “not on tap, not on top” (Busch 2011a). If experts involved on equivalence conventions can only claim expertise with regards the technical aspects and do not have a robust notion of democracy, the standards they develop are expected to be inadequate (Busch 2011a).

Another difference in the agreement concerns labelling. The EU allows the use of its organic label only if the product contains at least 95% of organic ingredients, thereby excluding its use for conversion products or processed foodstuffs of which less than 95 % of its ingredients of agricultural origin are organic (European Commission 2007b).

As the EU does not have, a 70-95% category unlike the US NOP, certified products intended to enter the EU market could be labelled as organic only if they contain at least 95% of organic ingredients. For products containing less than 95% organic ingredients, the reference to organic may appear in the list of ingredients on the product label only (Coleman 2012).

Other discrepancies between EU and US organic standards mainly relate to livestock production (Alonso 2012b; Fanatico 2008; OneCert 2011; Organic Trade Association´s 2002; Sundrum 2001) but were ignored during the process of the equivalency agreement by both governments in order to facilitate an increase in organic trade (Smoot 2012).

Interest groups with a focus on an issue are particularly likely to exert influence and pressure over policy outcomes: business groups can dominate policy outcomes through their ability to forge alliances with other interest groups (Richardson 2000). Such groups concentrate their lobbying effort in the EU Parliament, which has been called a “lobbying paradise" by the former EU Commissioner Mariann Fischer Boel. Concern with the increasing influence

exerted by corporate lobbyists on the political agenda in Europe and the resulting loss of democracy in EU decision-making prompted the creation of The Alliance for Lobbying Transparency and Ethics Regulation in the EU (ALTER-EU), a coalition of over 160 civil society groups, trade unions, academics and public affairs firms.

Equivalence agreements between standards are becoming an integral component of the global agri-food system, but little is known about practices and procedures when such agreements take place and the potential implication they have on both the governance of food and agriculture and on consumers. Lawrence Bush (Busch, 2000) when analysing the moral economy of food standards concluded with a series of questions regarding standards: Who shall benefit? Who shall lose? Thus, the aim of this chapter is to analyse the differences and potential discrepancies between Council Regulation (EC) No 834/2007 and the US National Organic Program (NOP) regarding beef production to address these two questions and also to identify possible implications of this global quality convention in the new geography of organic food.

In this research, the convention theory approach is applied for understanding if the common language (Raynolds, 2004) between the experts advising the EU/US government was based on technical issues or if there were other possible reasons for signing the equivalence agreement between both standards: The EU organic standards and the NOP standard. In this case, common language refers to the technical comparison of both standards regarding beef production.

As organic food products from non EU-countries can be imported into the EU only if the production rules and the inspection measures for organic food production in the 3rd country were equivalent to those in the European Union (Vogl et al. 2005), it was important to evaluate in this research if all issues regarding beef production in the EU organic regulation were considered equivalent to the NOP standard. The EU/US organic equivalence agreement has emerged as a tool used strategically to access each other markets[1] and there is a risk that

[1] United States Department of Agriculture (2012) USDA blog, 'Organics take a major step forward with U.S- EU partnership', Posted by Agriculture Deputy Secretary Kathleen Merrigan, on February 22, 2012.

the drive for 'regulatory coherence' in the transatlantic organic trade results in a lowering down of the EU Organic Regulation regarding specific animal welfare and safety issues.

Methods

Data presented in this chapter were in the form of text from livestock sections of the EU Regulation EC 834/2007 and EC Regulation 889/2008 and the National Organic Programme (NOP) of the US. Data also included the latest published and amendments of the EU Regulations.

The benchmarking study seeks to establish whether and to what extent the NOP standard addresses the relevant and defined articles of the EU Regulation (table 2.4). In other words, the degree of equivalence of the NOP and the EU Regulation EC 834/2007 and EC 889/2008 (Mattson 2009). An adaptation of the Equivalence of Organic Standards and Technical Regulations (EquiTool) (UNCTAD-FAO-IFOAM 2012) was used for benchmarking. The text related to the livestock section of each standard has been individually analysed and benchmarked against criteria defined using a numerical rating and matching system.

EquiTool is a Guide for Assessing Equivalence of organic standards and technical regulations for facilitating organic trade. It was developed by the International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF), a joint initiative of the United Nations Conference on Trade and Development (UNCTAD), the Food the Agriculture Organization of the United Nations (FAO) and the International Federation of Organic Agriculture Movements (IFOAM) (Alonso 2011; Mattson 2009).

Table 2.4: Overview of standards used in the benchmarking study (benchmark standards)

ID	*Standard*	*Body*	*Authority*
EU	European Council Regulation on organic production of agricultural products	European Council	EC 834/2007 EC 888/2008
NOP	National Organic Program	US Department of Agriculture	e-CFR, August 6, 2013.

The process of benchmarking using the adaptation of EquiTool involved:

1. Selection of beef production requirements from the EU regulations
2. Analysis and understanding of those requirements
3. Searching the NOP articles that satisfy the EU requirements
4. Analysis and understanding of the NOP requirements
5. Comparing both requirements (from an EU perspective)

A scoring system was used to establish the differences between the standards as follows:

0: Equivalent, when there is no significant variation between the US and EU.

1: Not Equivalent, when NOP requirements are judged not to be equivalent to the EU requirements

2: Additional, when NOP exceeds EU requirements

3: Omission, when the EU requirement is not addressed in the NOP standard.

4: Undecided, where the degree of equivalence is unclear.

A template for a comparison, including equivalency assessment and comments, was created. The template is an Excel file, which comprises four sections (table 2.5 and Appendix 1):

Section A: the article number and the text of the EU Regulations

Section B: the article number and the text of the NOP

Section C: the evaluation score

Section D: evaluator comments

Table 2.5: Template created for the standards benchmarking study (benchmark criteria)

Section A		**Section B**		**Section C**	**Section D**
Base Standard reference	Base Standard (EU Organic Regulation)	Evaluated standard reference	Evaluated standard (NOP)	Assessment: E: Equivalent N: Not Equivalent A: Additional O: Omission U: Undecided	Assessment comment

Source: adapted from EquiTool (UNCTAD-FAO-IFOAM 2012).

The categories of beef production and animal welfare in the EU Regulation examined were:

1. Origin of animals
2. Housing conditions
3. Access of animals to open areas
4. Stocking density of animals
5. Management of animals
6. Animal feed
7. Disease prevention
8. Conversion period

Using this template and the evaluation methodology, I was able to compare each article of the EU regulations regarding beef production with similar articles in the NOP in terms of their degree of equivalence. The values obtained from the assessment were converted to percentages by adding up all the scores for each category and dividing by the number of possible scores in that category.

Results and discussion

A Comparison of EU and US organic food standards

The EU Standard

The first organic regulation (EEC 2092/91) for organic production and labelling of organic products and organic food in the European Union came into force in 1991. On January 1st 2009, the EEC 2092/91 regulation was replaced by EC 834/2007 and by EC 889/2008 which deals with implementation rules. The new regulation consists of the three parts:

- Council Regulation (EC) No 834/2007 - principles of organic farming and the legal framework.
- Commission Regulation (EC) No 889/2008 - implementing rules.
- Commission Regulation (EC) No 1235/2008 - importing rules.

Scope of the EU Regulation

The EU Regulation applies to live or unprocessed crop and animal products (including honey and aquaculture products), processed agricultural products intended for human consumption and for animal feed, vegetative propagating materials and seed for cultivation, and yeast used as food or feed (European Commission 2007c). The regulation outlines the rules for labelling of organic produce (Section III, Chapters 1-3 of EU Regulation (EC) No 889/2008), production standards (Section II and related Annexes I - III) and inspection measures (Section IV, Chapters 1 - 7 of EU Regulation (EC) No 889/2008). The regulation also defines possibilities for importing organic food into the EU which is produced in non-EU member countries.

EU Labelling Requirements

Article 23 of Council Regulation (EC) No 834/2007 provides rules for labelling of organic produce and states that products may only refer to organic production methods if they have been obtained in accordance with the production rules and certified according to the inspection rules as laid down in this Regulation. Terms for describing "organic" in different member states, such as ecológico (Spanish), organic (English) and biologique (French) are protected (European Commission 2007b). The labelling rules also provide for the composition of a processed organic product, which must contain at least 95% organic ingredients in order to be labelled as organic produce. The list of ingredients must comply with various restrictions concerning all other ingredients or additives, described in article 19 of the same regulation, including:

- **Article 19.1** The preparation of processed organic food shall be kept separate in time or space from non-organic food.
- **Article 19.2.a** The product shall be produced mainly from ingredients of agricultural origin (not taking into account added water and cooking salt);
- **Article 19.2.b** Only additives, processing aids, flavourings, water, salt, preparations of micro-organisms and enzymes, minerals, trace elements, vitamins, as well as amino acids, and other micronutrients in foodstuffs for particular nutritional uses may be used, and only in so far as they have been authorised for use in organic production in accordance with Article 21.

As the use of the organic logo is limited to products which contain at least 95% of organic ingredients, products containing less than 95% organic ingredients may include an indication or reference to organic production on their label.

When the EU logo is used as stated in Article 24 of the EU organic Regulation (European Commission 2007b), the following compulsory indications on organic food labels must be easily visible, clearly legible and indelible:

- the code number of the control body or control authority.

- an indication of the place where the agricultural raw materials of which the product is composed have been farmed shall also appear in the same visual field as the logo and shall take one of the following forms, as appropriate:
    - EU Agriculture (raw material farmed in the EU).
    - Non-EU Agriculture (raw material farmed in third countries).
    - EU/ Non-EU Agriculture (part of raw materials farmed in the EU and part in a third country).

The NOP Standard

The USDA National Organic Program (NOP) was implemented across the US in October 2002 (Huber 2007; Johnson 2008) to deal with differences among certifier standards as well as the spread of unsubstantiated label claims and fraudulent marketing associated with a rapid expansion of the organic industry in the 1980s (Hoodes et al. 2010). In response to these issues, in October 1990 the US Congress passed the Organic Foods Production Act (OFPA, Title XXI of the 1990 Farm Bill) authorising USDA to create the National Organic Program (NOP). The purpose of the programme was to give consumer confidence in the integrity of organic production and to enable action to be taken when the term organic was used in a fraudulent way (Johnson 2008).

Scope of National Organic Program (NOP)

The scope of the NOP establishes what is included and excluded from the certification requirements (Pittman et al. 2011). Thus, Section B article § 205.100 of NOP (USDA 2013) explains:

(a) Except for operations exempt or excluded in § 205.101, each production or handling operation or specified portion of a production or handling operation that produces or handles crops, livestock, livestock products or other agricultural products that are intended to be sold, labelled, or represented as “100 percent organic,” “organic,” or “made with organic (specified

ingredients or food group(s))" must be certified according to the provisions of subpart E of this part and must meet all other applicable requirements of this part.

(b) Any production or handling operation or specified portion of a production or handling operation that has been already certified by a certifying agent on the date that the certifying agent receives its accreditation under this part shall be deemed to be certified under the Act until the operation's next anniversary date of certification. Such recognition shall only be available to those operations certified by a certifying agent that receives its accreditation within 18 months from February 20th 2001.

As mentioned before, Article § 205.101 of the NOP explains exemptions from certification. Four types of operations are exempted from certification requirements:

a) a production or handling operation that has a gross annual income from sales of organic products which is equal to or less than US$5,000 a year (Pittman et al. 2011; Rundgren 2007);
b) a handling operation that is a retail food establishment or portion of a retail food establishment that handles organically produced agricultural products but does not process them is exempt from the requirements in this part (USDA 2013);

c) a handling operation or portion of a handling operation that only handles agricultural products that contain less than 70 percent organic ingredients by total weight of the finished product (excluding water and salt);

d) handling operations or portion of a handling operation that only identifies organic ingredients on the information panel (USDA 2013).

NOP labelling Requirements

According to the NOP (Pittman et al. 2011; USDA 2013) only raw material or processed products including ingredients and additives produced according with the NOP regulation can be labelled as organic. Therefore the term organic may not use in a non-organic product.
There are three labelling categories in the NOP (Alonso 2012b; USDA 2013):

- *100% Organic:* for this category, any raw or processed product to be sold, labelled or represented as "100 percent organic" must contain 100 percent organically produced ingredients.

- *Organic:* for this category, any raw or processed product to be sold, labelled or represented as "organic" must contain at least 95 % organically-produced raw or processed agricultural products.

- *Made with Organic Ingredients:* this category is for products made with a minimum of 70% organic ingredients with strict restrictions on the remaining 30% including no GMOs (genetically modified organisms). Products with less than 70% organic ingredients may list organically produced ingredients on the side panel of the package, but may not make any organic claims on the front of the package.

Origin of animals

The EU organic regulation has nine main articles for the regulation of the origin of animals (Appendix 1). One of main conditions for raising livestock is that animals need to be born and raised on organic farms (Schmid 2009). However, when organic animals are not available in sufficient numbers, animals of conventional origin may be bought under certain conditions clearly stated in Article 14.1 (a) of Regulation 834/07, Articles 8 and 9 of Regulation 889/08 (European Commission 2007a).

The comparison of both standards (figure 2.1) regarding the origin of the animals shows that all EU requirements were fulfilled or exceeded (83.3%) by the NOP. This is because NOP is more restrictive regarding the origin of animals. In accordance with Article 14(1)(a)(ii) of Regulation (EC) No 834/2007, non-organic animals may be brought onto a holding for breeding purposes, only when organic animals are not available in sufficient number and subject to the conditions provided for in paragraphs 2 to 5 of this Article. However, NOP article § 205.236.a states that livestock products that are to be sold, labelled or represented as organic must be from livestock under continuous organic management from the last third of gestation or hatching. The livestock used as breeder stock need to be brought from a non-organic operation onto an organic operation no later than the last third of gestation. Breeder or

dairy stock that has not been under continuous organic management since the last third of gestation may not be sold, labelled or represented as organic slaughter stock (USDA 2013).

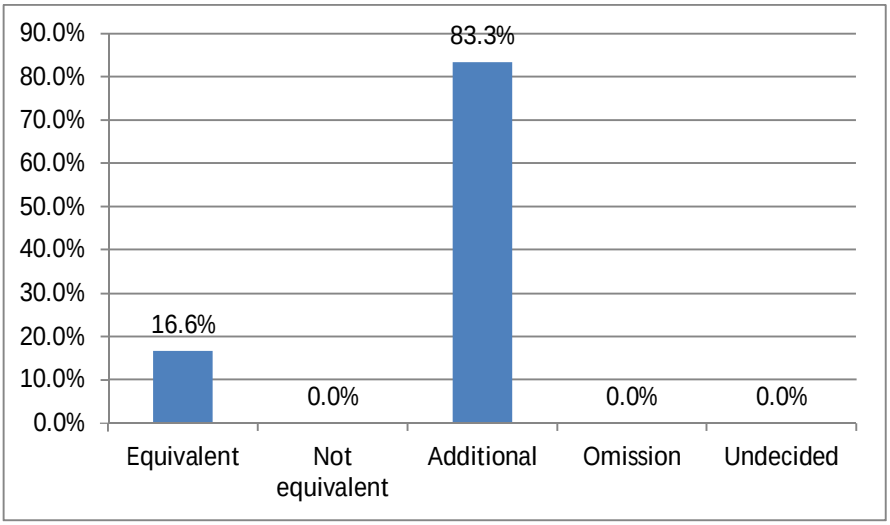

Figure 2.1: Results of the equivalence study regarding the origin of animals (EU Regulation 889 vs. NOP standard).

The EU requires that animals shall be taken based on their capacity to adapt to local conditions, their vitality and their resistance to disease. In addition, breeds or strains of animals shall be selected to avoid specific diseases or health problems associated with some breeds or strains used in intensive production. In that regard, NOP § 205.238.1 specifies the selection of species and types of livestock with regard to suitability for site-specific conditions and resistance to prevalent diseases and parasites; the NOP standard is not as precise as the EU Regulation regarding the selection of species of livestock but the evaluator considers it equivalent.

Housing conditions

Housing conditions should contribute to increased animal welfare, a priority and a major challenge in organic livestock farming (Hovi et al. 2003) as well as to the health of animals (Sundrum 2001; Veissier et al. 2008a). The EU Regulation provides a standard that includes specifications for housing conditions, livestock density, animal welfare, floor characteristics and husbandry practices (Hovi et al. 2003; Sundrum 2001).

There are seven main articles in the EU Regulation regulating housing conditions, three of which are not included in the NOP standard (figure 2.2). The first (EU Regulation article 889.10.3), is related to the minimum surface for indoor and outdoor areas according to the weight of animals. The NOP does not specify indoor or outdoor stocking densities at all.

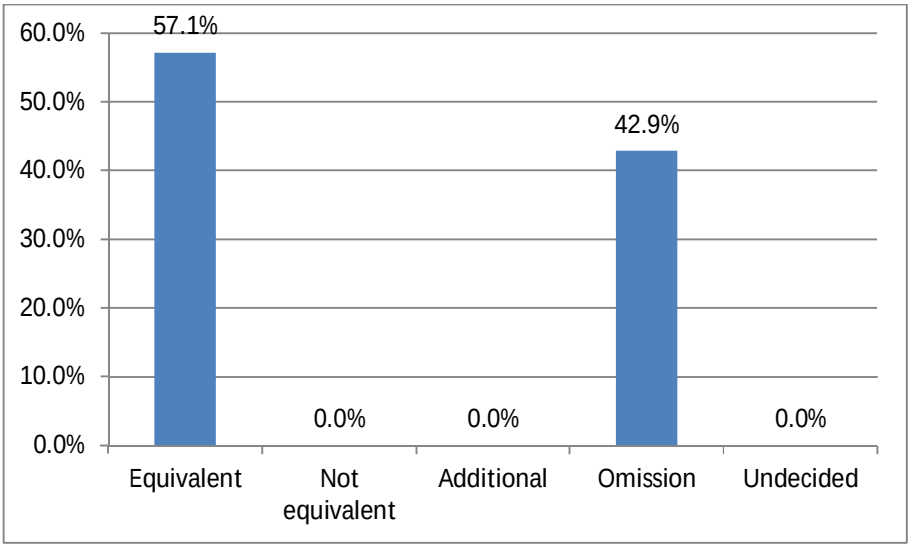

Figure 2.2: Results of the equivalence study regarding housing conditions (EU Regulation 889 vs. NOP standard).

The second article not covered by the NOP is the EU Regulation 889.11.1 which states that livestock housing shall have smooth but not slippery floors. At least half of the indoor surface area shall be solid, that is, not of slatted or of grid construction. These elements are not included in the NOP regulation.

The third article of the EU Regulation relates to the prohibition of calf boxes after one week of age. The issue of individual housing for calves is regulated by the NOP through article § 205.239c.2, in the case of new born dairy cattle for up to six months, but prohibits animals being prevented from moving around freely, after which they must be on pasture during the grazing season and may no longer be individually housed.

Other important issues of housing in the EU Regulation fully covered by the NOP are: the air circulation in buildings; dust level and temperature (article 10.1 of EU Regulation889); enabling animals to live outdoors (article 889.10.2); animal comfort in buildings according to

the age of animals (stocking densities); guarantee of animal welfare (article 889.10.3), and the provision of comfortable, clean and dry laying/resting areas of sufficient size (article 889.11.2).

Access to open areas

EU Regulation articles regarding access by animals to open areas are fully covered by the NOP standard (figure 2.3). The regulation of access to open areas in the EU regulation for beef production is covered by article 889.14.1-4, which states:

1. open air areas may be partially covered,
2. herbivores shall have access to pasturage for grazing whenever conditions allow. In cases where herbivores have access to pasturage during the grazing period and where the winter-housing system gives freedom of movement to the animals, the obligation to provide open air areas during the winter months may be waived.
3. bulls over one year old shall have access to pasturage or an open air area.

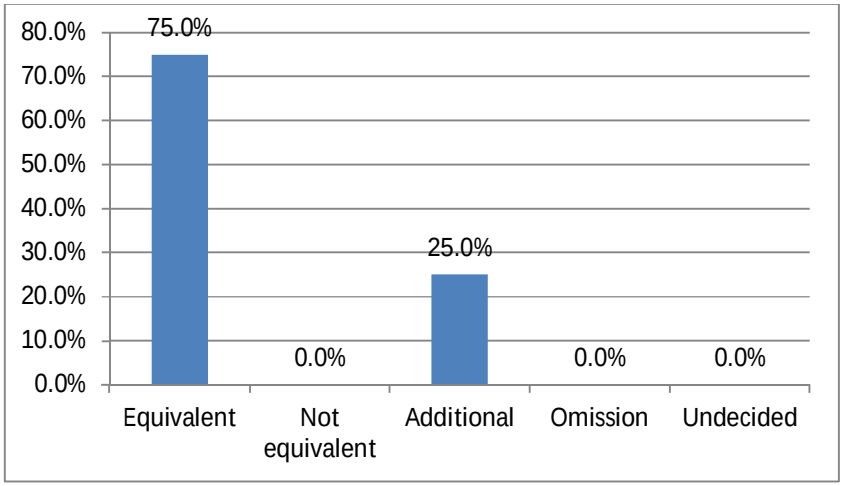

Figure 2.3: Results of the equivalence study regarding access to open areas (EU Regulation 889 vs. NOP standard).

With regard to article 889.14.1 of the EU Regulation, the NOP is not only equivalent but also more specific about pasture management and minimum access to pasture, because ruminant animals must be grazed throughout the entire grazing season for that geographical region, which shall be not less than 120 days per calendar year (§ 205.237.c.1.).

In the case of bulls over one year old having access to pastures (article 889.14.4), the NOP standard is more strict because the animals must have access to pasture from birth (§ 205.2398.b.7) and EU regulation 889.14.2 does not specify the period of access to pasture.

Stocking density

Council Regulation (EC) No 834/2007, Article 14(1)(b)(iv) limits the number of livestock with a view to minimising overgrazing, poaching the soil, erosion or pollution caused by animals or spreading their manure (Fladl & Hulot 2009). This implies a stocking density that generates less than 170 kg of nitrogen excreted by that stock per year per hectare of agricultural area (Fladl & Hulot 2009).

To determine the appropriate density of livestock referred to above, the competent authority shall set out the livestock units equivalent to the above limit, taking as a guideline the figures laid down in Annex IV of the Regulation 889/2008 or the relevant national provisions adopted pursuant to Directive 91/676/EEC (European Commission 2007a). Annexe IV (European Commission 2007a) gives the maximum number of animals per ha equivalent to 170 kg N/ha/year (table 2.6).

Table 2.6: Maximum number of animals per ha equivalent to 170 kg N/ha/year as stated in the Council Regulation (EC) No 889/2008.

Category	*Number of animals*
Other bovine animals less than one year old	5
Male bovine animals from one to less than two years old	3.3
Female bovine animals from one to less than two years old	3.3
Male bovine animals two years old or over	2
Breeding heifers	2.5
Heifers for fattening	2.5

Source: (European Commission 2007b).

In the case of the NOP regulation, there is no specification of the number of animal per hectare; the stocking density in the NOP standard is related to an animal's daily intake. Article § 205.240.2 states that the average ruminant stocking density in grazing areas should not be equivalent to less than 30 percent of an animal's dry matter intake from grazing throughout the grazing season. Therefore the NOP stocking density it is not directly comparable to the EU limit of 170 kg/ha which also corresponds with the Nitrate Directive 91/676/EEC (Schmid et al. 2008).

US livestock producers could obtain compliance through the application of the National Organic Program Handbook, which contain similar rules for stocking density (Organic Trade Association´s 2002). However, the National Organic Program Handbook is a really only source of guidance and instructions for accredited certifying agents and certified operations and is not a mandatory document (USDA National Organic Program (NOP) 2013).

Management of animals

The review of both standards (figure 2.4) shows that there is 90% of compliance of the NOP with the EU Regulation. In 30% of cases, the NOP exceeds the EU requirements. One EU article (article 889.18.4) not regulated in the NOP is that related to the use of any electrical stimulation during the loading and unloading of animals. The European Union animal welfare policy and Codex Alimentarius states that any suffering shall be kept to a minimum during

the entire life of the animal and the use of electrical stimulation and allopathic tranquillisers during transportation and slaughter is prohibited (Morgera et al. 2012).

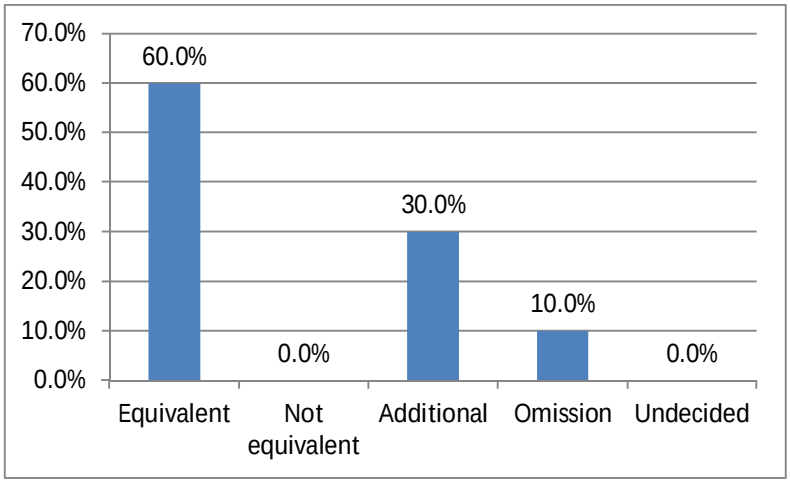

Figure 2.4: Results of the equivalence study regarding management of animals (EU Regulation 889 vs. NOP standard)

There are no perceived significant differences between the NOP and the EU Regulation regarding: landless livestock production (article 889.16); the separation of organic livestock from other livestock (articles 889.17.1 & 834.14.1.b.v); avoidance of organic animals and non-organic animals on pasture at the same time (article 889.17.2); maintenance of documentary evidence of farm activities (article 889.17.5); performance of physical alterations (dehorning, castration, etc.) as a need to promote animal welfare only and in a manner that minimizes pain and stress (Article 889.18.1); castration in order to maintain the quality of product and traditional production practices if it is carried out keeping suffering of animals to a minimum and by applying adequate anaesthesia or analgesia (Article 889.18.2).

Finally, the NOP exceeds the EU in two requirements. The first is with respect to the final fattening phase of adult bovines (Article 889.46), where in the EU he animal can be kept indoors in the final fattening phase tfor a maximum period of three months, but in the NOP continual access to pasture is mandatory. The second concerns the temporary tethering of animals (889.39). The NOP standard is more restrictive because it permits temporary confinement but not tethering.

Animal feed

Figure 2.5 shows a high percentage of equivalences (62.5%) regarding animal feed but also a moderate level of omissions (37.5%) of EU requirements by the NOP.

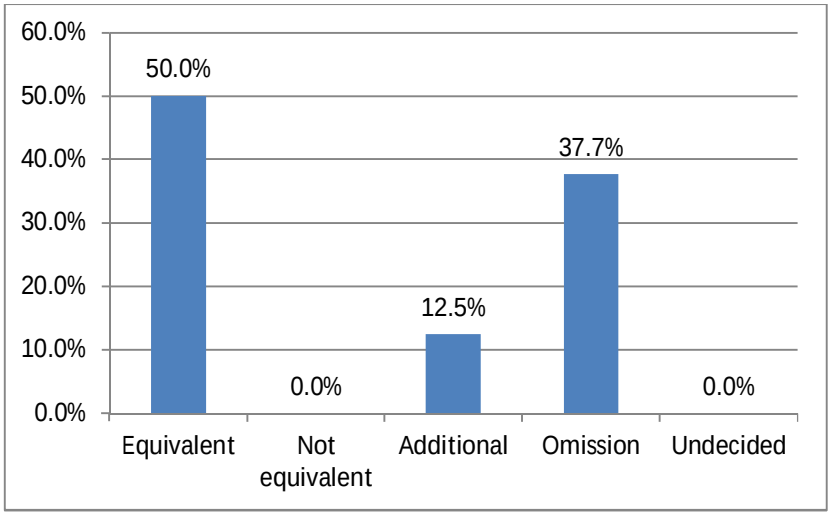

Figure 2.5: Results of the equivalence study regarding animal feed (EU Regulation 889 vs. NOP standard).

The EU Regulation on animal food and feed controls and welfare rules cover all stages of livestock production (Horgan & Gavinelli 2006). The regulation states that at least 60 % of the feed shall come from the farm unit itself or if this is not feasible, be produced in cooperation with other organic farms in the same region (Schmid 2009).

In this regard, the NOP states that feed can also be brought from other organic farms and requires that the total feed ration must include all feed brought from outside the farm. However, the NOP does not regulate the minimum percentage of feed that shall come from the farm unit itself (USDA 2013).

Other issues of animal feeding omitted by the NOP are related to the feeding of young animals which in the EU is to be based on maternal milk in preference to natural milk (Plakolm 2009) and for a minimum period of three months for bovines (Article 889.20.1). The NOP does not specify any requirements for lactation by young animals.

Disease prevention

Overall, there is a 69.2% compliance of the NOP (figure 2.6). There are 23.1% of cases where the NOP was more restrictive than the EU regulation. In contrast, the NOP scores 23.1% on omission for disease prevention.

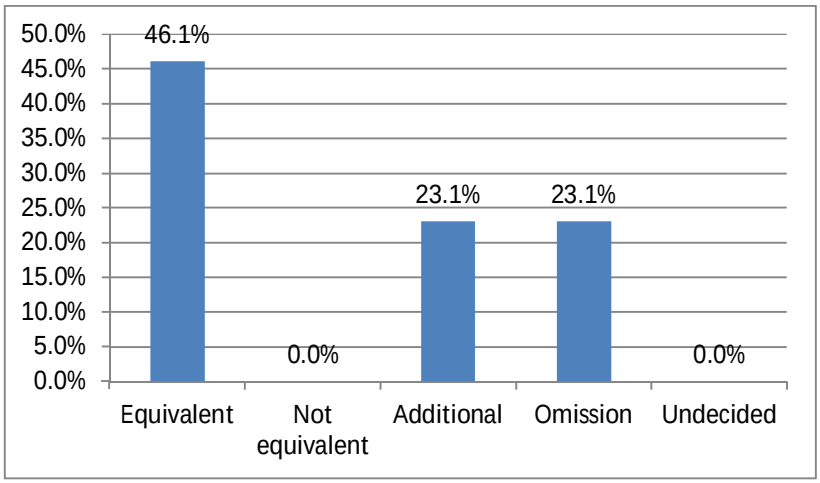

Figure 2.6: Results of the equivalence study regarding disease prevention (EU Regulation 889 vs. NOP standard).

Disease prevention is an important component of animal welfare (Fraser 2008; Fraser et al. 2013) and in most EU countries farms are required to register with the competent authority for disease control purposes (Veissier et al. 2008a). In this regard, the EU Regulation prohibits the use of chemically synthesised allopathic veterinary medicinal products or antibiotics for preventive treatment (in the absence of illness) (Article 889.23.1). The NOP applies the same principle; the administration of any animal drug other than vaccinations, in the absence of illness is prohibited (Article § 205.238.c.1).

Other EU requirements on disease prevention fully covered by the NOP include the prohibition of substances that promote growth or production (Article 889.23.2); the prohibition of hormones or similar substances for inducing reproduction unless as a form of veterinary therapeutic treatment in case of an individual animal (Article 834.14.1.c.ii); the guarantee of the immediate treatment of sick or injured animals to avoid suffering (Articles 834.14.1.e.ii & 889.24.1); the use of authorised veterinary medicine with preference to chemically-synthesised allopathic veterinary treatment or antibiotics and the condition for

which the treatment is intended (Article 889.24.2); the use of chemically synthesised allopathic veterinary medicinal products or antibiotics may be used under the supervision of a veterinarian (Article 889.24.3).

There are two EU requirements related to the use of veterinary medicine where the NOP is more restrictive. First, when an animal or group of animals receive more than three treatments with chemically-synthesised allopathic veterinary medicinal products or antibiotics within 12 months, or more than one treatment (if their productive lifecycle is less than one year), the livestock concerned or produce derived from them may not be sold as organic products (Article 889.24.4).

Second, with respect to the withdrawal period between the last administration of an allopathic veterinary medicinal product to an animal under normal conditions of use, and the production of organically produced foodstuffs from such animals, that period is to be twice the legal withdrawal period or, in a case in which this period is not specified, 48 hours (Article 889.24.5). In both cases, the NOP is more restrictive because it sets a lower limit for the time for which animals can be treated with allopathic treatments (Article § 205.238.b.1 and 2) and prohibits any substance that contains a synthetic substance not allowed under § 205.603, or any substance that contains a synthetic substance prohibited in § 205.604. If the animal receives an antibiotic treatment it cannot be sold as organic (Article § 205.238.c.1).

Another difference is that the EU Regulation states that where livestock are obtained from non-organic units, special measures such as screening tests or quarantine periods may apply, depending on local circumstances (Article of EU Regulation 889.23.3). The NOP does not regulate screening tests or quarantine periods for newly purchased animals.

One important issue in disease prevention is cleaning and disinfection of livestock buildings and installations. In that regard, the EU Regulation requires that housing, pens, equipment and utensils shall be properly cleaned and disinfected to prevent cross-infection and the build-up of disease-carrying organisms (article 889.23.4). Whilst the NOP has regulations for cleaning, it does not specify disinfection.

The storage of allopathic veterinary medicinal products and antibiotics is permitted on holdings provided that they have been prescribed by a veterinarian in connection with treatment as referred to in Articles 14(1)(e)(ii) or 15(1)(f)(ii) of Regulation (EC) No 834/2007. This is also stated in the European Regulation for Animal Remedies Regulations which clearly outlines the obligations of a veterinary practitioner in relation to the prescribing and dispensing of animal remedies (European Communities 2007; O'Sullivan 2011). This is not mentioned in the NOP standard.

Conversion period to organic farming

The conversion period to organic farming is the transition phase between conventional agriculture and organic designation (ECOCERT 2012). The conversion period starts when the operator has notified his activity to the competent authorities and subjected his holding to the control system (article 834.17.a) and concludes when the operator fulfils all requirements stated in (EC) Regulation 834/07 (Article 834.11 and 14; Article 889.8 to 25). The results show (figure 2.7) that the NOP exceeds the EU requirement mainly because even when the EU regulation states a fixed time for conversion for beef production (24 months), it can be reduced by different circumstances, for example, a one-year reduction for pasturages and open air areas used by non-herbivore species (Article 889.37.2). However, the NOP standard is more restrictive because the conversion period is 3 years.

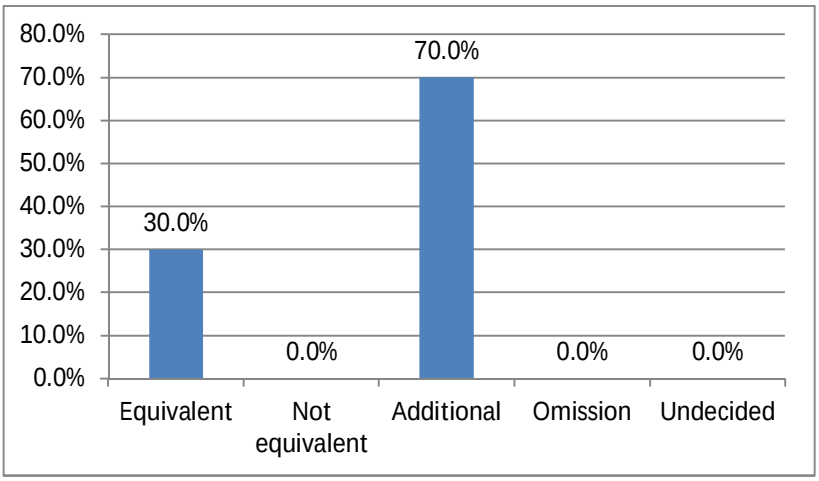

Figure 2.7: Results of the equivalence study regarding conversion period (EU Regulation 889 vs. NOP standard).

Under EU rules, when non-organic animals exist on a holding at the beginning of the conversion period their products may be deemed organic if there is simultaneous conversion of the complete production unit, including livestock, pasturage and/or any land used for animal feed (Articles 889.38.2 & 834.14.1.a.iii). In such cases, the NOP standard sets separate requirements for conversion of land from requirements for organic management of animals. The conversion period for land cannot be reduced, nor can the requirements for organic livestock (§ 205.236.a and § 205.236.3). Since the EU regulation allows reduction of both, the NOP standard is more restrictive.

Final observations

It is clear from the above that whilst there are many similarities and overlaps between the EU Regulation and the NOP, there remain significant differences, particularly with regard to animal feed (37.5%), housing conditions (42.9%), disease prevention (23.1%) and management of animals (10%). There are several omissions in the NOP standard regarding the EU regulation as the NOP does not regulate the screening tests or quarantine periods for newly purchased animals, the disinfection of housing, pens, equipment and utensils, the prescription of animal remedies by a veterinary practitioner, the use of electrical stimulation during the loading of animals, the minimum percentage of feed that shall come from the farm unit itself and the requirements for lactation of young animals.The two systems are different in many respects, including style and content of the text. The NOP is more precise, clearer and easier to understand, whereas the EU Regulation goes into greater detail in a very bureaucratic style, not making understanding of each article easy. For example, the tethering of animals should be implemented according to Article 39 of EU organic regulation 889/2008, which begins by stating; “where the conditions laid down in Article 22(2)(a) of Regulation (EC) No 834/2007 apply”. Article 39 of EU organic regulation 889/2008 states that the previous organic regulation (EEC) No 2092/91 is repealed as from 1 January 2009. The information about tethering of animals is at Article 14.vi. When reviewing Article 22(2)(a) of Regulation (EC) No 834/2007, reference is made to procedures in Article 37.2 of this regulation (Regulation (EC) No 834/2007) which make reference to Articles 5 and 7 of Decision 1999/468/EC!!

Finally, it should be noted that the NOP control system has been recognised by the European Commission as sufficient to meet the accreditation requirements of the EU organic regulations

with one exception: the use of antibiotics. Crops can be produced using antibiotics in the US, but cannot be marketed as organic in the EU. In practice, this means that, as of February 2013, inspection and certification agencies accredited by NOP are competent to certify US organic products as compliant with the standards of the EU Organic Regulations. The EU logo may be attached to products certified as such, which can then be exported/sold to countries of the European Union without the need for a separate EU certification.

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CHAPTER 3

Quality conventions at the local scale: the case of organic beef in Galicia.

Introducion

In Europe, a perceived increase in food industry scandals such as bovine spongiform encephalopathy (BSE), Foot and Mouth disease and other diseases such as salmonella, as well as dioxin in eggs, have increased societal concerns over food safety and health dimensions of industrialized farming practices (Aarset et al. 2004; Akaichi et al. 2012; Winter 2003). These concerns favour the creation of new networks of producer–consumer chains (Kirwan 2006; Marsden 2009) which in Europe are opening "opportunities for the organic beef sector" (Marsden 1998). The consumption of organic food is increasing mainly because of consumer concern about health (Kortbech-Olesen 2002), agricultural practices such as the use of chemical herbicides, pesticides, fertilizers, growth-promoting agents and feed additives in plant and animal production (Akaichi et al. 2012) and also because of concern about the impact of agricultural production on the environment (Cudjoe 1992; Haglund 1999). In this context of growing concern, locally recognizable food produced "under a clean and green environment are more accepted for consumption" (Murdoch & Miele 1999). In the UK for example, the Government Strategy for Sustainable Farming and Food: Facing the Future in England, recommends the increase in the market of local, regional and organic foods, as a response to these concerns (Defra 2002). This is especially true for the organic beef sector (Marsden 1998), the focus of this chapter.

Organic products like beef need a production system which combines "best environmental practices, and a high level of biodiversity" (European Commission 2007) for sustaining "the health of the soil, ecosystem and people" (IFOAM 2005). Organic agriculture also applies "high animal welfare standards" to "satisfy the preferences" of organic consumers (European Commission 2007). The aim of the EU organic regulation detailed and discussed in Chapter 2 (table 3.1) has been throughout its entire process of development to provide the basis for the sustainability of organic production, a correct and fair functioning of the internal market and the protection of organic consumers (European Commission 2007).

Table 3.1: The process of development of the regulation on organic farming in the European Union.

Date	Milestones towards the first EU Regulation on organic farming
Late 1980s	European Commission considered drafting a directive to define and control organic food and farming.
1987	IFOAM formed the IFOAM EC Delegation to advice and negotiate with the European Commission.
June 1990	IFOAM EU Working Group formed at the Budapest IFOAM conference, with the aim of developing a representative structure for IFOAM organisations in the EU.
June 1991	Council Regulation (EEC 2092/91) on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs is published.
January 1993	Regulation 2092/91 came into force, for the first time in the world making organic food and farming subject to legal definition and control.
February 1993	Regulation 207/93 defined the additives, processing aids and non-organic agricultural ingredients allowed in processed organic foods.
July 1999	Commission Regulation 1804/1999 set requirements for organic animal production, defining common rules for organic livestock husbandry for the first time.
February 2000	Founding assembly of the IFOAM EU Regional Group held in Nuremberg, Germany, transforming the old EU Working Group into a fully-fledged regional group of IFOAM.
May 2001	Joint Danish Government and IFOAM EU Group conference held in Elsinor, Denmark, the declaration called for the development of a European organic action plan.
December 2002	European Council under the Danish Presidency called on the Commission to develop a European organic action plan.
January 2004	Commission held a Hearing on the organic action plan.
February 2004	Commission launched an internet consultation on the European organic action plan.
June 2004	Commission published the European action plan for organic food and farming.

Source: (Schülter 2009).

For a product to be considered organic it needs to address the specified principles, recommendations and requirements stated in the standards that guide operators in producing their organic produce, while maintaining its organic integrity during the entire process from harvest to end-processing of the organic commodity (IFOAM 2005). One of the key elements of Alternative Food Networks (see table 3.2 for more definitions) which create different

coordination mechanisms between consumers and producers is the "implicit agreements on quality standards" (Barbera et al. 2014).

Table 3.2: Selection of some attributes of Alternative Food Networks (AFNs) by different researchers.

Atributes	**Author (year)**
Short food supply chains	(Ilbery and Maye 2005; Renting et al 2003),
Local food and local supply chain sourcing	(Ilbery and Maye 2006)
Supply systems	(Winter 2003; Hinrichs 2000),
Culturally embedded food systems	(Hinrichs 2000)
The quality turn in food supply	(Weatherell et al 2003; Goodman & DuPuis, 2002)
Direct farm retail	(Renting et al 2003; Weatherell et al 2003; Brown 2001)
Community supported agriculture	(Allen et al 2003)

The main objective of organic certification undertaken by a third party agency is to certify not only the product, but every step of the organic chain (European Communities 2007; Stockdale 2008). In the mid-1980s, the European Commission started introducing controls over organic production to ensure consumer protection (Schülter 2009), thereby guaranteeing that the organic integrity of the product is maintained (Rundgren 2005a).

Nevertheless, organic food consumption in Spain has grown more slowly than in other European countries (Gil et al. 2000). As such, Spain has the lowest per capita organic consumption in the European Union (table 3.3), being exceeded by Germany, France and Italy (MAGRAMA 2012a).

Table 3.3: Selection of the three countries with the highest organic food per capita consumption in the European Union compared with Spain.

Country	*Per capita consumption (Euros/person/year)*	*% of organic spending over total*
Germany	81	3.5%
France	58	2.0%
Italy	33	3.0%
Spain	21	1,0%

Source: (MAGRAMA 2012a).

Within Spain, Galicia situated in the north-west (figure 3.1), is a region with a high potential for the development of organic farming. This is because of the lower level of intensive agricultural production (Prieto 2010) and a high degree of preservation of the environment (Domínguez et al. 2010). It is therefore not surprising that the marketing of Galician organic products increased by 80% since 2007 and the number of producers similarly increased from 469 in 2009 to 484 in 2010, whilst organic food industries increased from 78 to 89 in the same period with an associated increase in turnover, from 14 to 17 million Euros (INDEGAE 2013).

Figure 3.1: Study areas in the Autonomous Community of Galicia, north-west Spain (Source: adapted from http://www.zonu.com/)

Galicia is a region with a long agricultural tradition of rearing livestock. In Galicia, organic livestock production is one of most important economic sectors with a turnover of 1.4 € million/year (Almodóvar 2009). Galicia has the most popular and traditional cattle breed in Spain, Ternera Gallega (Galician veal). Within Galicia, organic certification is under the control of the public body, the Consello Regulador de Agricultura Ecolóxica de Galicia (CRAEGA; in English, the Galician Organic Certification Body). According to CRAEGA (CRAEGA 2012) the organic area in 2011 increased by 8% over the previous year which means nearly 15,000 ha were cultivated. Within Galicia, the provinces with the highest organic production are Ourense and Lugo (> 6,000 ha). This region is characterised by small-scale organic producers and food chains characterized by "values attached to products" and "values associated to the kind of relations between actors along the supply chain" (Stevenson et al. 2011).

However, despite locally embedded organic food chains such as the organic Ternera Gallega (Galician veal) with its high potential for satisfying consumer expectations (Lobley et al. 2009), these expectations are not always realised. This is well-illustrated by the example of the Bioocop cooperative in Galicia, confirmed by Sr. Jose Luiz Vaz, General Manager of Bioocop, the biggest organic beef producer cooperative in the region. During an interview for this research, conducted on 11 May 2009, Sr. Vaz explained that the cooperative has a differentiated market and that the meat is sold directly to consumers, organic butchers and small portion to the supermarket El Corte Inglés, but that the "market share is still very small despite the meat being organic certified."

Consumer perception of organic food quality

Food quality is not in fact easily distinguished by consumers (Grunert 2005; van Rijswijk 2008), probably because consumers often have uncertainties when making judgments about the quality of products (Hansen 2005). A survey undertaken by the EC in 28 countries on consumer attitudes and expectations about labelling showed that consumers are often dissatisfied with food labelling, finding labels difficult to read and thus to understand. For example in Germany, consumer perceptions of the governmental logo and the EU logo were very different, even though these labels indicate exactly the same information (Janssen &

Hamm 2012). Also, consumers would prefer standardised labels so that they could compare products (IPSOS-INRA 2007).

The same applies to labels for organic food. In addition to the EU organic logo, there are several other voluntary organic certification logos (Janssen & Hamm 2012). Many consumers are unaware of the food quality control system so the knowledge base for differentiating between different types of label is weak (Schleenbecker & Hamm 2013). According to research undertaken by the Organic Federation of Australia (Leu 2009), all Australian organic food buyers recognised only one of the nine symbols that were tested. In the same survey 72% of organic consumers said they would prefer to have only one symbol used by all organisations. In Spain and in the rest of Europe, consumer confusion about labelling and product identification has been shown to affect demand for organic produce (Fuentes & Lopez 2008; Padel & Midmore 2005) although poor availability (Fuentes & López de Coca 2008a), lack of organic promotion (MAGRAMA 2007a), reluctance to pay price premiums (Chang & Zepeda 2005) and complicated marketing channels and logistics routes (López Salcedo 2013) are also contributing factors. In Spain, there is also a lack of knowledge of consumers about organic production methods (Muñoz et al. 2006).

The Producer role in generating consumer trust

It is clear from the above that the Galician region has a very high potential for the production of organic beef, as there are significant areas of agroecosystems that can be used efficiently through an organic livestock production system, but that this potential is not being realised to its fullest extent. The main objective of this research was to find out why. The issue demands a deeper understanding of how the values and qualities of food products are mediated in an alternative organic food chain.

Consumers ensure the safety and quality of the products they purchase in two ways: the certification by authorities or obtaining the products directly from farmers whom they trust (Akitsu & Aminaka 2010). Therefore, the impact of trust on consumer choice has a direct impact on the economic success of labelled organic products, but trust issues affecting the producers of organic food have hardly been studied (Rittenhofer & Povlsen 2015) as most research studies regarding the organic market have primarily focused on the consumer

purchasing attitudes (Idda et al. 2008a; Paul & Rana 2012; Realini et al. 2013; Robles et al. 2005; Sanjuán et al. 2012; Soler et al. 2002; van Rijswijk 2008).

However, factors that influence producer behaviour are equally as important because when consumers truly trust in farmers, food certification is not necessary (Willock et al. 1999). This trust with producers not only gives consumers the opportunity to find fresh, local, high-quality produce but also gives producers access to a larger share of consumer expenditure by eliminating intermediaries (Vecchio 2009).

Willock et al. (1999b) suggest factors that influence producer behaviour are equally as important to investigate, especially when both consumers and producers have different societal objectives: for the producer the maximisation of financial returns*;* for the consumer the natural, healthy, environmental and welfare-friendly issues of organic food products. This study aims to elicit and compare the views of both consumers and producers in order to identify socially constructed criteria (Marsden 1998) from the communication between farmers and consumers, that supports the "trust in organic farmers" (Migliore et al. 2014). Here, the concepts of "local" and "embeddedness" are useful constructs, so these are discussed before the main analytical section which evaluates the knowledge and information of consumers and producers in relation to organic food. Therefore, in this chapter I evaluated how retail strategies of producers address consumer expectation regarding organic certified beef.

Methods

The methods that are used in this chapter include the collection of empirical material through semi-structured interviews with organic consumers and producers. I analyse how the producers make use of the concept of organic quality for their retail strategies. I also analyse how consumers perceive the local organic certified food phenomenon and what it means in reality for them. In the case of consumers I used convenience sample (Battaglia, 2008), and

triangulating outside observations were not included (Kozinets 2002). That constitutes a limitation of the study as the results cannot be generalized and it should be interpreted with caution. I used convenience sample, mainly because of cost and resource limitations as this was a self-funded study and convenience sampling was a quick and less expensive way of selecting the Galician consumers readily available (Fritz & Morgan, 2010). However, the results and recommendations outlined in this chapter could constitute points of consideration when designing investigations of the organic consumer-producer conventions; also further replication of the findings would be useful.

Empirical Data.

From the producer side, I collected empirical data from the interview (questionnaire) carried to the organic producers of the cooperative Biocoop (see above). From the consumer side, I explored consumer perceptions of organic food using interview (questionnaire) data and observations gathered at the Organic Fair of Silleda that took place in June 2011. Convenience sampling method was used by approaching consumers having experienced the organic product at least once prior to the survey and willing to answer the questions. The sample was intended to be as representative of organic consumers as practicable from the point of view of organic producers marketing strategies. An attempt at random sampling (more representative of the Galician population as a whole) would have resulted in under-representing the organic consumers that shop most often at the local organic market. These data and observations thus provide two interconnected case studies: consumer perception and expectation of organic food quality in Galicia, and Galician organic beef producer retail strategies for addressing consumer expectations of organic beef. This approach is widely used in social sciences for investigating contemporary phenomenon within a real-life context (Stake 1995; Yin 2003).

Case selection criteria.

The criteria for selecting the organic beef network were that it would be representative of an Alternative Organic Food Network operating at the local level and involve interactions of the main actors, the producers, and consumers.

Data collection

For the producers study

59 farmers (producers) of the cooperative Biocoop were selected. The farms were situated in 16 municipalities within Galicia (figure 3.2): Rios, A Veiga, Laz, Verin, Monterrei, Calvos de Randing, Sandias, Allariz, CEA, Barbadas, Ourense, Quinela de Leirado, Coles, Entrimo, San Xoan de Rio and Montederamo. The criterion for selection was their membership of the Biocoop cooperative established in 1998 for the production of organic beef (http://www.verinbiocoop.com/). These farmers sell their produce through local shops, farmers markets and a small amount is supplied to local supermarkets. The products are certified as organic under the Commission Regulation (EC) No 889/2008 of 5 September 2008 and Council Regulation (EC) No 834/2007 of 28 June by the Public Certification Body CRAEGA.

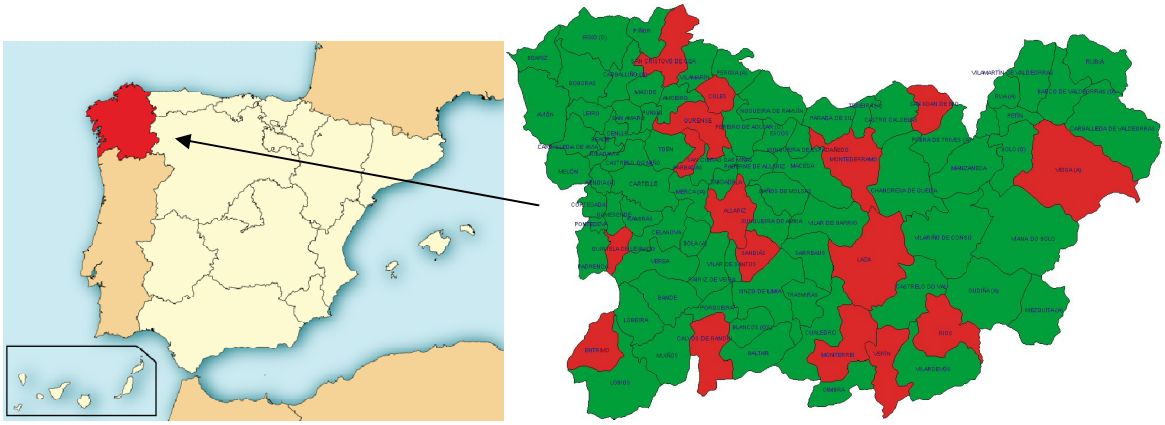

Figure 3.2: Location of selected farmer municipalities within the Galician region in Spain**.**
Source: Biocop website http://www.verinbiocoop.com/

Establishing and using an expert panel. On 12th of April 2009, a group of experts from the cooperative Bioocop, the Consejo Regulador (Certification Body) de la IGP (Protected Geographical Indication) Ternera Gallega, the Asociación Nacional de Criadores de Ganado Vacuno Selecto de Raza Rubia Gallega (A.C.R.U.G.A) were invited to participate in a panel in order to provide insight into structuring a questionnaire which would subsequently be given to producers. Prior to the meeting, experts received briefing information on the objectives of

the research to be carried out. The format and organisation of this meeting followed the Morgan focus group methodology (Morgan 1988). During the meeting, I acted as moderator and guided discussions, taking notes and writing on a board any key agreed points. The meeting lasted 90 minutes and included a coffee break at the end to facilitate interaction and exchange of ideas. Finally, a wrap-up session was used to summarize the findings and to establish consensus about what had been discussed and decided. The expert panel agreed that the following issues should be in the included in the questionnaire design:

- Farmer sources of information on organic food and organic markets
- Meat attributes appreciated by consumers
- Main criteria that consumers use when purchasing local food
- Reasons for certifying meat production as organic
- Main marketing strategies
- Main barriers for cooperative development

The survey questionnaire. The survey was carried out with 59 Galician farmers (member of the cooperative Bioocop) from May to November 2009 and the findings subsequently analysed. The survey questionnaire was administered by personnel of the board of the cooperative trained in this kind of activity and by myself. The details of the questionnaire were explained in detail in a formal meeting held in the cooperative. A short introduction was made by myself to give the respondent a deeper understanding of the research objectives, but without prejudicing subsequent answers and opinions. The questionnaire (APPENDIX 2) was divided into seven sections: (1) demographic details (2) farmer source of information on organic food and organic markets (3) meat attributes appreciated by consumers (4) main criteria used by consumers when purchasing local food (5) reasons for certifying meat production as organic (6) main marketing strategies (7) barriers to cooperative development. The questions and issues raised in the questionnaire were based on the results from the literature research and the expert panel discussions.

The questionnaire was constructed in Spanish and distributed to farmers who could choose to return it directly to the researchers or to leave it in the cooperative office to be collected. However, 80% of the respondents decided to complete the questionnaire during meeting held in the cooperative. 52 respondents from 59 initially included in the study completed the questionnaire, giving a response rate of 88.13%. Data were summarized using frequencies and percentages.

For the consumers study

The study was carried out in three provinces in Galicia (Lugo, Ourense and Pontevedra), Spain (figure 3.1, above) using Galician consumers of organic food. Data collection involved two key stages:

Focus group meetings: Focus group discussions were use as consultation for the development of the questionnaire. Therefore the focus group meetings played an important part of questionnaire design, engaging a small number of people in an informal group discussion around a particular topic (Wilkinson 2004). Two focus group meetings with the consumer association Xuntanza, and the Consumer Association La Pastora, in Vigo, Galicia were conducted from May to June of 2011 in order to establish the main issues to be included in a subsequent questionnaire (Morgan 1998) and to gain a rounded understanding of consumer food purchasing preferences. In Spain, consumer associations play a key role in mediation and coordination in resolving consumer disputes related to products or services. The two consumer associations that participated in this research have a board of specialists qualified in mediation. This board is elected by consumers in an open assembly. Some consumer associations in Spain are funded by the Spanish National Institute of Consumer Affairs, part of the Ministry of Health, Social Policy and Equality, and others by are financed via membership fees. The consumer associations participating in this research were financed partly by the Ministry of Health and partly by membership fees.

Three individuals from each consumer association participated in the discussions. I avoided using large groups in order to make participants feel more comfortable about

sharing their opinions and experiences (Kress & Shoffner 2007; Krueger 2002). First, I explained to the participants of the focus group the process of collecting and analyzing information to increase our understanding of a topic under study. I asked them about the major concerns faced by consumers about organic food, offering each person a chance to respond. Then we opened the question up for discussion and I took notes on a poster board. This part of the process took about 45 minutes and was followed by a 10 minute break, during which I reviewed the poster board and notes and identified themes based on the content and enthusiasm of the group's comments. I then placed those themes on a single sheet of paper and asked participants if they would confirm (or not) that they were the priority research themes. Participants of the focus group answered in the affirmative, sometimes offering a few minor adjustments. Participants suggested that for a better evaluation of consumer perception of organic food, the following should be included in the questionnaire:

- sources of information about organic food
- meat attributes that are appreciated by consumers
- main criteria consumers use when purchasing organic food

Design of the questionnaire survey of consumers: The design of the interview questionnaire was based on a literature review, the focus group meetings described above and discussions with experts from the Department of Business and Economics of the University of Vigo and included other experts in the field of organic food. The experts were chosen from among those recommended by the Consumer Associations, by the University of Vigo and from the organic organisation Vida Sana. The role of experts was to review the questionnaire as a method for identifying issues and to identify any breakdowns in the question-answering process and other potential measurement errors in survey reports as well as technical issues related to organic food production or certification. The group of experts also permitted the exchange of ideas through sessions where every expert had the opportunity to express their opinion. The main objectives of the questionnaire was to gain an understanding of consumer knowledge, attitudes and purchase motivation with regards to organic food, in particular their knowledge and confidence in organic certification. The questionnaire consists of 11 questions (see

APPENDIX 3); the first question focused on obtaining the general information of consumers participating in the survey, such as Gender, Age, Income and Education. The second questios was pertained to the places were organic consumers purchase their organic food. Third question of the questionnaire covered the organic products consumers purchased the most. Question four was made to identify the definition of organic food product by consumers. Question five addressed the consumer´s motivation for purchasing an organic product. Question 10 was related to the confidence of consumers on the organic certification and finally question 11 tried to address the sources of information about organic food used by consumers. All questions in this section are constructed with 5 point Likert scale ranging from 1 to 5: 1 (strongly agree), 2 (agree), 3 (disagree), 4 (strongly agree) and 5 (don´t know). Here the objective was to identify which aspects were consumers most satisfied with and least satisfied with if any.

Undertaking the questionnaire survey to consumers

The survey was undertaken to 849 consumers between 13th and 16th June 2011 with Galician organic consumers visiting the organic fair "Feria International Semana Verde de Galicia" (www.feiragalicia.com) held in Silleda, Galicia. On the first day, a practice with 20 consumers took place to evaluate if they were able to understand easily the questions, and for checking possible misunderstanding of the questionnaire. The results indicated that it was not necessary to modify any of the questions in the questionnaire.

The data were analysed using descriptive statistics (frequency and cross tabulation). To analyse consumer preferences, questions were divided into five groups: consumer definition of organic food, consumer confidence in organic certification, consumer motivation to purchase organic foods, consumer source of information about organic food and consumer frequency of purchase of organic food.

Results and discussions

Producers

Consumer perception of organic food quality in Galicia as perceived by organic producers

Within Spain, Galicia, after Andalucía, is considered a region where consumers have greater confidence in organic products (Ek & Sermeño 2006). This is because Galicia has traditionally been a rural region with a strong reliance on the primary sector (Diaz Maroto & Vila Lameiro 2008) and where farming activities are performed on a more environmentally sound basis as an 'organic agro-ecosystem' (Simón Fernández 1995). Despite this contention, according to the quality manager of the Biocoop cooperative (Personal communication, 26th May 2009), it is difficult for organic beef producers in Galicia to maintain stable sales of their production, especially when consumers do not have a good understanding of organic food. Understanding consumer knowledge and behaviour surrounding organic food is particularly important for organic producers, not only because organic produce is considered a '*gateway*' product (Hartman Group 2002), but also because by paying attention to consumer trends producers can be more competitive (Agriculture and Agri-Food Canada 2010).

Organic producers in Galicia need to recognise the contradiction between the generally positive attitude of consumers toward organic food and the relatively low level of organic food purchases (Pearson et al. 2011). Overcoming the consumer's lack of knowledge about food quality or labelling is vital (Tsakiridou 2009) and producers need to communicate better the food value of their products (Krystallis et al. 2007), including information on where the food comes from and how it was produced (Pretty 2004). A lack of effective information from producers to consumers about these issues, has been highlighted by (Duffy et al. 2005) for local food systems and this is particularly true for Spain (Nijhoff-Savvaki et al. 2012; Vega-Zamora 2011), constituting a key constraint for farmer access to the market (NRI/IITA 2002; Svensson & Drott 2010). The following questionnaire survey to producers aims to explore these issues further.

Demographic characteristics of producers

Table 3.4 summarizes the socio-demographic characteristics of the sample. Fifty-two respondents completed the questionnaire, with an estimated response rate of 88%, based on a total of 59 farmer's members of the cooperative. There were 45 males (86.5%) and 14 females (26.9%) respondents, with a mean age of 46.4 years.

Table 3.4: Demographic characteristics of producers participating in the study (between brackets the percentage of the total for each variable**)**

	n	*%*
Sex		
Males	45	(86.5)
Females	14	(26.9)
Age		
30-50	29	(55.8)
<50	23	(44.2)

Farmer sources of information on organic food and the organic market

Respondents were presented with four statements that focused on their opinions about producer sources of information on organic meat and the organic market (table 3.5). The main source of information for Galician organic producers was from the media (50%). However, and as observed above for Galician consumers, information about organic food provided in newspapers and other publications in Spain is actually very low (MAGRAMA 2007c).

A valuable source of information for farmers was asking within the cooperative (26.9 %) and asking other producers (21.2%), confirming that farmer-to-farmer relationships are a fruitful source of information (Franz et al. 2010). Nevertheless, it could be argued that this mode of information exchange does not seem to be effective in increasing their knowledge on organic food and their organic markets, given the low state of that market in Galicia.

Table 3.5: Farmer sources of information on organic food and the organic market (between brackets the percentage of the total for each variable)

	Frequencies									
Information source	Always		Very often		Sometimes		Rarely		Never	
Surveys/market research	0	(0.0)	0	(0.0)	0	(4.46)	0.72	(7.7)	48	(92.3)
In Internet	8	(15.4)	5	(9.6)	19	(3.48)	1.02	(25.0)	7	(13.5)
In TV, radio, newspapers	26	(50)	17	(32.7)	7	(2.08)	1.06	(3.8)	0	(0.0)
Asking to my clients	4	(7.7)	11	(21.2)	13	(2.81)	1.20	(25.0)	11	(21.2)
Asking to other producers	11	(21.2)	13	(25.0)	10	(2.77)	1.31	(25.0)	5	(9.6)
Asking in the cooperative	14	(26.9)	11	(21.2)	12	(3.27)	1.46	(13.5)	8	(15.4)

N = 52

The internet is another means by which those farmers obtain information. Research undertaken by the Iowa Farm and Rural Life Poll indicated that 78% of farmers in Iowa used the internet for accessing market information and 78% did so for accessing general agricultural news (Arbuckle 2011). By contrast, only 15.4% of Galician producers used the internet as source of information (Table 3.10), a finding which corresponds with Cassia et al. (2012) for the Lombardy Region of Italy where only 2.4% of farmers (from 82 interviewed) acknowledged the use of internet. In Galicia, the use of the internet is also low for marketing purposes: Fernando & Martínez (2004) found that for marketing wine only 12% of the 343 wineries surveyed had a website.

Farmers only occasionally or rarely asked consumers (7.7 %, Table 3.10), which is surprising given that the objective of short supply chains is to create direct linkages between consumers and producers (Feagan et al. 2004). Such engagement is a way to "scale-up" and "capitalise" local markets (Friedmann 2007; Hinrichs & Barham 2007) and direct exchange between producers and consumers is critical for the success of local food systems, particularly for increasing quality perception by consumers (Feagan 2008; Henry 2008).

Meat attributes that consumers appreciate more, as perceived by producers

The survey revealed that farmers perceived some meat attributes as more important than others for consumers (Table 3.6), including the taste (73.1%), the price (44.2%), and the freshness (43.1%). This finding is consistent with those of Govindasamy et al. (2002) into attitudes, preferences and characteristics of consumers who shop at farmers markets in which quality and freshness were selected by 63% and 59% of the participants, respectively.

Table 3.6: Meat attributes that consumers appreciate more, as perceived by producers (between brackets the percentage of the total for each variable).

Meat attributes	Frequencies									
	Not at all important		Somewhat important		Important		Very important		Extremely important	
The taste	4	(7.7)	5	(9.6)	19	(36.5)	35	(67.3)	38	(73.1)
The price	0	(0.0)	4	(7.7)	18	(34.6)	27	(51.9)	23	(44.2)
The freshness	0	(0.0)	4	(7.7)	15	(28.8)	26	(50.0)	25	(43.1)
The certification	0	(0.0)	0	(0.0)	0	(0.0)	21	(40.4)	21	(32.7)
The appearance	0	(0.0)	0	(0.0)	2	(3.8)	23	(44.2)	17	(30.5)
The brand	4	(7.7)	0	(0.0)	0	(0.0)	14	(26.9)	13	(24.9)
Locally produced	2	(0.0)	0	(0.0)	0	(0.0)	16	(30.8)	12	(23.1)
The origin	0	(0.0)	3	(5.9)	0	(0.0)	7	(13.5)	10	(19.2)

N = 52

Meat certification (32.7%) was ranked fourth implying that consumers do not fully appreciate the potential quality effect of locally produced products (23.1%), especially when the meat is organically certified by a protected designation of origin (PDO) and there is a perception that organic products should be locally based (Jones et al. 2001; Miele 2001). Local labels have the potential to signal specific quality to consumers when buying produce (Kirwan 2004; Sonnino 2007).

Other sources also considered less important included the brand (24.9%) and the origin (19.2%). Origin has been found by Bernabéu et al. (2010) in a survey in Madrid as the most adequate strategy as a differentiating element for cheese.

Consumer motivation when purchasing organic food, as perceived by producers

Respondents were asked to share their perceptions of the main criteria used by consumers when purchasing local food. Table 3.7 shows that the most important criteria are:

- Price (80.8%), consistent with earlier studies that concluded that for Spanish consumers organic products are usually expensive or that the higher prices of organic products are not justified by greater quality (Mesías et al. 2012).

- Quality (65.4%), consistent with the findings of Angulo and Gil (2007a) for Spanish consumer willingness to pay for certified beef in Spain which showed that 73% of respondents were not willing to pay a higher marginal price for certified beef. This finding supports farmer concerns about the contribution of price to the low consumption of organic food in Spain.

Table 3.7: Consumer motivation when purchasing organic food, as perceived by producers (between brackets the percentage of the total for each variable).

Criteria	Frequencies									
	Not at all important		Somewhat important		Important		Very important		Extremely important	
The price	0	(0.0)	17	(32.7)	10	(19.2)	21	(40.4)	42	(80.8)
The quality of the local food	0	(0.0)	6	(11.5)	0	(0.0)	18	(34.6)	34	(65.4)
More trust in local food	0	(0.0)	6	(11.5)	0	(0.0)	12	(23.1)	32	(61.5)
To support local producers	0	(0.0)	0	(0.0)	0	(0.0)	4	(7.7)	12	(23.1)
To support local economies and communities	6	(11.5)	0	(0.0)	0	(0.0)	3	(5.7)	9	(17.3)

N = 52

Support for local producers (23.1%) and local economies and communities (17.3%) were perceived to be less important for the consumer's decision. The lack of support of consumers for the local market is probably related to the lack of knowledge of Spanish consumers about organic food at local organic markets (Mesías et al. 2012; Vega-Zamora 2011) as well as the lack of proper structure of these markets (MAGRAMA 2012a). Similar results were found by Sepulveda et al. (2010) when studying farmer attitudes towards lamb meat production in a Protected Geographical Indication in Aragón, a region in the north-east of Spain.

Main marketing strategies

Respondents were presented with five main marketing strategies (table 3.8). The producers ranked the origin of the meat (34.6%) first in the very important category and second (65.4%) in the extremely important category. Similar results were found by Font et al. (2011) when studying consumer's purchasing intention for meat in Spain, France and United Kingdom. A study of the functioning of the meat market for consumers in the EU (SANCO 2012) showed that origin was selected by consumers as their third priority when they look for information about meat. The same study showed that there is a gap between the share of consumers who know a specific type of meat and the share of those who purchase it, and the same was observed for meat with organic and environmental/climate certifications. For example, in the case of meat where the origin was specified, awareness was 76% and purchase 60%. In the case of origin certified, awareness was 55% and purchase 32%. Finally, in the case of organic meat, awareness was 49% and purchase 22%.

In the present study, quality of meat was extremely important for 80.8% of producers and somewhat important for 11.5%. This is consistent with the work of Bernués et al. (2003a) and McEachern and Seaman (2005) who found that the quality of meat was the main selection criteria for UK and Spanish consumers. It is evident from these results that producers are aware that information about the origin of the product is very important to enable informed purchase decisions to be made by consumers (Barham 2002), further helping to shorten the supply chain and facilitating the connection between producer and consumer (Marsden 2000b), because consumers could have difficulty in evaluating meat quality, which could be a reason for uncertainty and dissatisfaction (Grunert et al. 2004).

Galician producers ranked the environmental-friendly methods of organic production as extremely important for 65.4% and very important for 23.1% of them. This issue was somewhat important for only 11.5% of the producers. Critical attitudes of consumers toward animal welfare are associated with a reduction of meat consumption (de Boer et al. 2007). It seems that Galician producers are aware that consumers are willing to pay more for environmentally-friendly products (Laroche et al. 2001; Loureiro & McCluskey 2000), as previous research indicates that the second motivation of consumers for buying organic meat is its association with the protection of the environment and animal welfare issues (Chamorro et al. 2009; Padel & Foster 2005).

Using other quality marks was thought as extremely important by 59.6% of producers and very important for 31% of them. This could suggest either that the producers are not fully convinced of the use of the organic certification for marketing of their meat or that the organic label is an effective signal of quality in combination with other quality marks. However, (McCluskey & Loureiro 2003) found that using two or more indications of quality mark may diminish marginal returns for producers (McCluskey & Loureiro 2003).

Reducing prices was not one of first marketing priorities for the organic producers as it was considered extremely important by 17.3% of producers and very important for 19.2% and not important at all by 11.7%, probably because farmers know that consumers are willing to pay higher prices for locally produced foods (Martinez et al. 2010). However, the results presented here do not support those obtained by Mesías et al. (2012) who found that for Spanish consumers price is still the main variable affecting any consumer purchasing decision. Price is considered as a major obstacle for the development of the organic market in Spain (SÁNCHEZ et al. 2001).

Table 3.8: Ranking of responses from organic beef producers on different marketing strategies to increase meat sales (between brackets the percentage of the total for each variable).

Marketing strategies	Frequencies									
	Not at all important		Somewhat important		Important		Very important		Extremely important	
Reduce selling prices	6	(11.5)	17	(32.7)	10	(19.2)	10	(19.2)	9	(17.3)
Highlight the quality of the meat	0	(0.0)	6	(11.5)	0	(0.0)	4	(7.7)	42	(80.8)
Highlight the origin of meat	0	(0.0)	0	(0.0)	0	(0.0)	18	(34.6)	34	(65.4)
Highlight that the production is environmental friendly	0	(0.0)	6	(11.5)	0	(0.0)	12	(23.1)	34	(65.4)
To use other quality marks	0	(0.0)	0	(0.0)	0	(0.0)	21	(40.4)	31	(59.6)

n = 52

Barriers to cooperative development

Organic producers in Galicia considered that the main barrier for beef cooperative development (table 3.9) was the increase of meat production costs (Mean=4.62; SD= 0.844). Research undertaken in the Spanish region of Andalucía shows that in most of those organic meat farms analysed, the prices of products did not cover production costs. All farmers interviewed in this research identified slaughter cost as one of the main reasons for increases in production costs (Mena et al. 2014). In Spain, the increased production costs are also associated with enforced controls and stricter application of regulations (Angulo & Gil 2007a). This is because policies and legislation are perceived by farmers as workload which cause reduction to their income (Jurrich & Rusell 1987; Schulman & Armstrong 1989, cited by McEachern & Willock, 2004). The increase of feed prices in Spain is also associated with the increase of production costs, as stated in a report from the Irish Food Board (Bord Bia 2011). In the case of Spain these costs were related to an increase of feed costs which together with the slowdown of meat consumption in 2011 caused economic uncertainties in the beef sector. The high cost of organic products is a consequence of the high production costs which in some cases are between 25 and 30% above conventional production costs (Alonso 2005; Brugarolas et al. 2005; Chamorro et al. 2009; Soler et al. 2002).

The second barrier identified by producers was the lack of consumer knowledge about organic labelling (Mean=4.56; SD= 0.70). This concern of producers is consistent with other studies in Spain that highlight the lack of knowledge of Spanish consumers about organic food and the effect it has on demand (Fuentes & López 2008; Gil et al. 2000; MAGRAMA 2007b; Vega-Zamora 2011). Those authors acknowledged that a major challenge is to increase consumer knowledge of organic food products as well as differentiating organic labels from other quality marks in the market place as both constitute the main reasons affecting consumer purchases (de Magistris & Gracia 2012).

Table 3.9: Main barrier for beef cooperative development ranked in descending order by farmers in the study.

Main barriers	n	M	SD
The increase of meat production costs	52	4.62	0.844
The lack of knowledge of consumer about organic labelling	52	4.56	0.698
The importation of cheap meat by supermarkets	52	4.42	0.776
A strict supermarket quality standards	52	3.71	0.667
The pressure of consumers for quality food	52	3.35	1.186

The importation of cheap meat by supermarkets (Mean=4.42; SD=0.78) as a main barrier for development is consistent with a report from the Ministry of Agriculture of Spain (MAGRAMA) which states that the presence and competition of cheap meat from third countries is increasing in Spain and is creating uncertainty for organic producers about the future of the Spanish organic sector (MAGRAMA 2012a).

Strict supermarket quality standards (Mean=3.71; SD=0.67) were considered as less important by Galician producers, as it seems they do not feel the pressure of supermarket standards. Big supermarket chains have developed initiatives to commit their suppliers to strict food safety regulations, including unexpected inspections at farms and processing units in order to reduce risks and liability costs and to inspire confidence to consumers (Havinga 2006), making it difficult for smaller producers to continue producing (Skarstad et al. 2007). Galician producers do not feel such pressure from consumers, ranking that consideration last (Mean= 3.35; SD= 1.186), mainly because they sell only 10% of their production to supermarkets. However, such demand is creating opportunities for producers willing to differentiate their products for addressing specific target markets (Grunert 2005).

In summary, this analysis has revealed a number of factors which influence the choice of consumers with respect to organic meat in Galicia and has also identified the main factors perceived by the producers of that meat that affect consumer choice. Those factors are not always ranked in order of importance by the two actors in this market, the producers and consumers. I go on to discuss the significance of this further in the next chapter of the thesis.

Previous research has shown that organic agriculture demand higher levels of commitment and knowledge compared to conventional systems, as the conventionalisation process has

"squeezed the local knowledge" (Morgan & Murdoch 2000). The results of this study suggest that the low consumption of organic food in Galicia is probably due to the lack of knowledge and reliable sources of information of organic food for both producers and consumers. Also, producers identified lack of consumer knowledge about organic labelling as the second most important barrier for their further development, possibly related to a similar lack of consciousness of producers and consumers of environmentally-related issues surrounding organic production. In the case of producers, it is clear that the process of transition to organic certification which includes full understanding and application of the organic and environmental principles of the EU regulation was not properly implemented by the Galician organic certification body. There is also a clear disconnect between consumers and producers concerning the importance of organic certification which ranked second for consumers but only fourth for producers. The failure to develop and maintain this direct connection means that the producer does not receive consumer feedback on the meat attributes which they most appreciate.

Consumers

Demographic characteristics of consumers

In the case of organic consumers, (table 3.10 the majority of the respondents were female (53.5%), while males constituted 46.5%. The predominance of females to males is expected as they shop more than their male counterparts do. The table also shows that majority of the consumers were over 65 years in age (26.3%), while the next largest group representing 18.1% (201 consumers) were between 35 and 45 years old. People with primary education were those that contributed the highest percentage (35.3%), about 17% had finished high school, 15% technical education and 14% of the respondents had completed education to bachelor level. About 17% of the respondents received a monthly income less than €6000, 17% between 600 and €999, 22% between 1000 and €1499, 16% between 150 and €1999, 13% between 2000 and €3000 and 6% had incomes greater that €3000.

Table 3.10: Demographic characteristics of consumers (between brackets the percentage of the total for each variable).

Description	*n*	*%*
Sex		
Males	517	(46.5)
Females	595	(53.5)
Age		
16-24 years	79	(7.1)
25-34 years	195	(17.5)
35-44 years	201	(18.1)
45-54 years	181	(16.3)
55-64 years	164	(14.7)
≥65 years	292	(26.3)
Education		
Primary school	392	(35.3)
High school	197	(17.7)
Technical education	164	(14.7)
Bachelor	153	(13.8)
No answer	2	(0.2)
Province of residence		
Lugo	143	(12.9)
Ourense	137	(12.3)
Pontevedra	379	(34.1)
Population size		
< 5,000 hab	191	(17.2)
5 000-9 999 hab	168	(15.1)
10 000-19 999 hab	193	(17.4)
20 000-50 000 hab	164	(14.7)
> 50 000 hab	396	(35.6)
Income		
< 600 Euros	59	(5.3)
600-999 Euros	185	(16.6)
1 000-1 499 Euros	241	(21.7)
1 500-1 999 Euros	180	(16.2)
2 000-3 000 Euros	141	(12.7)
> 3 000 Euros	68	(6.1)

n=849

Consumer sources of information about organic foods

The most common source of information about organic food was the television, identified by 49.2% of males and 44.3% of females (table 3.11), a finding similar to previous research (Botonaki et al. 2006; McEachern & Seaman 2005). However, a study carried out by the Ministry of Agriculture in Spain found that only a third of respondents stated they have seen advertising of organic products in the television, mainly because the low promotion of organic food on Spanish television (MAGRAMA 2007c). This is an important issue since the process of consumer decision-making is "largely influenced" by the level of information consumers have about a food product (Wier et al. 2008). Consumers need to know about the benefits and relevance that local food could provide to them before they purchase a local product (Feldmann & Hamm 2014).

The second most relevant source of information for consumers was the regular presence of organic food in stores (35.6%). Besides shops which specialise in organic food, many general food shops and supermarkets in Spain have some organic food on their shelves. The organic food products in these shops are usually not in a specific section of the shop, but displayed together with the products that consumers usually purchase in their respective sections (such as meat shelves). However, the presence of such products in their shopping place contributes positively to consumer knowledge of organic food products (Gracia & de Magistris 2007).

Newspapers and other publications (28%) contribute to consumer information on organic food, despite the low level of information about organic food in newspapers and other publications in Spain (MAGRAMA 2007c). Other possible sources of information such as friends or relations were less important (25.1% of females) for Galician consumers as also found by Olaizola et al. (Olaizola et al. 2005) in their study of consumer attitudes towards specific quality beef in Zaragoza, Spain.

Conversely, consumers rank as the least important source of information organic promotional activities at fairs (3.9%), despite the fact that organic fairs are important places for connecting producers and consumers and facilitating social interaction between them, and are where producers can promote their product using particular strategies to attract consumer sense of logic and perception of quality (Kirwan 2004). Promotional activities for organic food constitutes an important activity not only to respond to consumer "desire for higher food

quality" (Gracia & Magistris 2007) but also for persuading consumers to substitute conventional foods by organic ones (Idda et al. 2008b). Consequently, promotion is crucial for enabling informed purchase decisions to be made by consumers (Barham 2002; Dopico 2002).

This study found that only 1.6% of males and 3.0% of females used the internet as a source of information. Galicia is a predominately traditional area of Spain, so that new marketing channels such as the internet are still not explored by many consumers. Spanish consumers have a very low motivation for using internet for purchasing their organic food (Fuentes & López de Coca 2008b). According to Bodini et al. (2009), the internet does not yet feature prominently as an information source for food products, despite the fact that in their research organic consumers state they had searched for information on organic food products on the internet.

Table 3.11: Consumer source of information about organic foods (between brackets the percentage of the total for each variable).

Variable/description	*Sources of information*													
	Regular presence in the store		*Information on TV*		*Information in newspaper, magazines*		*Promotion at fairs*		*Promotion at children's school*		*Internet*		*Friends and family*	
Gender														
Males	108	(28.0)	190	(49.2)	142	(36.8)	15	(3.9)	1	(0.3)	6	(1.6)	92	(23.8)
Females	165	(35.6)	205	(44.3)	100	(21.6)	18	(3.9)	1	(0.2)	14	(3.0)	116	(25.1)
Age groups														
16-24 years	19	(30.2)	36	(57.1)	13	(20.6)	0	(0.0)	2	(3.2)	0	(0.0)	10	(15.9)
25-34 years	44	(28.2)	71	(45.5)	35	(22.4)	3	(1.9)	0	(0.0)	5	(3.2)	37	(23.7)
35-44 years	71	(39.9)	87	(48.9)	66	(37.1)	8	(4.5)	0	(0.0)	6	(3.4)	47	(26.4)
45-54 years	56	(36.4)	66	(42.9)	52	(33.8)	6	(3.9)	0	(0.0)	5	(3.2)	33	(21.4)
55-64 years	42	(31.8)	61	(46.2)	38	(28.8)	9	(6.8)	0	(0.0)	1	(0.8)	29	(22.0)
≥65 years	41	(24.7)	74	(44.6)	38	(22.9)	7	(4.2)	0	(0.0)	3	(1.8)	52	(31.3)
Education														
No studies	6	(21.4)	17	(60.7)	3	(10.7)	0	(0.0)	0	(0.0)	0	(0.0)	7	(25.0)
Primary school	79	(30.5)	115	(44.4)	48	(18.5)	10	(3.9)	0	(0.0)	7	(2.7)	75	(29.0)
High school	45	(27.4)	92	(56.1)	52	(31.7)	5	(3.0)	1	(0.6)	2	(1.2)	33	(20.1)
Technical education	58	(38.4)	80	(53.0)	60	(39.7)	6	(4.0)	1	(0.7)	3	(2.0)	33	(21.9)
Bachelor	50	(36.0)	56	(40.3)	48	(34.5)	7	(5.0)	0	(0.0)	4	(2.9)	31	(22.3)
No answer	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	2	(100.0)

n=849

Consumer motivation for purchasing organic food

Freshness is often cited as one of the most influential factors affecting a consumer's decision when purchasing meat (Muñoz 1998; Sanjuán et al. 2012; Shafie & Rennie 2012). For Galician organic consumers (table 3.12) the most important motivation in the selection and subsequent purchase of organic food was indeed freshness (47.4%, females), possibly because females are more likely to adopt a healthier diet for the family, as reported by de Magistris and Gracia (2008). Freshness as a motivation increases with increasing age: 30.4% of the 16-24 year old respondents increasing to 38.5% for 25–34 year olds, to 39.8% for the age category 35-44, 40.9% for 55-64 year olds, whilst the oldest respondents (>65 years) had the highest score (44.2%). This is consistent with other studies (Kleinová & Neománi 2010) and contributes to our understanding of consumer purchasing behaviour. Freshness is also one of main selection criteria for consumers in England, France, Italy and Scotland when purchasing a meat product (Bernués et al. 2003b; Wierenga et al. 1997).

Organic certification was ranked highly by males (33.8%) and was an important motivation for the age categories 45-54 years (30.4%) and 35-44 years (30.3%), with both younger and older consumers being less motivated, with the least motivation in the youngest (16-24 years, 15.2%) and oldest (25-34 years 21.5%) consumer groups. Research by other authors has shown that Spanish consumers make a direct link between food certification and food quality when choosing a food product (Bardajı et al. 2009), implying that organic certification does impact on consumer product perceptions (Lockie & Donaghy 2004; Wong 2008). Loureiro and McCluskey (2000) observed that in the case of Protected Geographical Identification (PGI) Galician Veal label, that label was perceived by consumers as having a high intrinsic value. Quality certification in an important criteria for consumers not only because they are demanding more "reassurance about organic quality" (Rijswijk & Frewer 2008), but because supermarkets offer a wide range of quality of products (Padel & Foster 2005) that could cause consumer confusion (Dumaresq & Greene 1997; Neeson & Pearson 1998).

The most regular consumers of organic food in the survey do not appear to be particularly price sensitive, because only 13% of consumers consider organic food expensive, although the younger consumer seems more sensitive to price: 16-24 years (27.8%) and 25-34 years (16.9%). This result is contrary to the findings of Zanoli and Naspetti, (2002) who found that the price of organic products affected not only the occasional organic consumer but also the

regular consumer and in the case of Spain it constitutes a major obstacle to organic food consumption (Fuentes & López de Coca 2008b). It is important to consider that when the survey for this research took place there was not in Galicia the current financial crisis that may well be affecting consumer decisions today. However, these results are consistent with the realities of the Spanish organic market, which increased in 2011 by 60 million Euros (MAGRAMA 2012b). Nevertheless, although production in Spain is increasing, consumption of organic food remains at 2.3% while in countries like Germany and Switzerland it represents close to 3.5% and 5.7%, respectively (MAGRAMA 2012b).

The survey results with respect to the role of brand motivation in consumer decisions (6.2 % of males and 4.9 % of females) shows that with the exception of the age group 16-24 years whose motivation was 5.1%, brand motivation increases with increasing age and for the oldest consumers ($\geq$ 65 years) it is 7.2%), although these differences are small. The low percentages are in contrast with earlier studies (Batte 2010; Meldrum 2006) which found that branding of an organic product was a very important factor in consumer choice. Brand names have a favourable effect on consumer perception of quality (Del Río et al. 2003; Dodds et al. 1991) and permit consumers to recognise a product and reduce the levels of perceived risk (Bello et al. 2000). However, as observed by (Henryks et al. 2013) organic brand comprises many sub-brands making labelling not always clear to consumers, especially in Spain where consumer knowledge about organic labelling is very poor (MAGRAMA 2012a), probably because there is a considerable overlap between consumer definitions of quality and safety (van Rijswijk & Frewer 2008).

Country of origin was not an important aspect for Galician consumers when selecting an organic product. Only 9.7% of females considered country of origin as an important factor in their purchasing decision. Between categories, country of origin is more important for consumers between 45-54 years, which supports the finding of previous studies (MAGRAMA 2012a; McEachern & Seaman 2005). According to research undertaken by Saunders et al. (2013) of consumer behaviour in China, India and the UK, origin was rated as more important in China (54%) and India (40%) than in the UK (29%). However, that is at odds with an EU report on European attitudes towards food quality and the countryside. One of the findings of the report is that 71 % of EU citizens consider the origin of food as an important issue (TNS Opinion & Social 2012).

For many consumers, local products mean more freshness and seasonality with better taste than imported ones (Hjelmar 2011) and organic food is also associated by consumers with local attributes (Lockie & Donaghy 2004; Wier et al. 2008). Other studies have considered other key elements that could influence consumers to support local markets such as the cultivation of local varieties which consumers identify more with and for which they are willing to pay more (Brugarolas et al. 2009). However, Galician consumers were less motivated with respect to support of local producers (7.9% of males) and motivation declines with age: 8.9% for 16-24 year olds to 5.5% for the oldest group. It may be that Galician organic producers do not have a "suitable market approach" to engage consumers for purchasing their organic certified meat (Essoussi & Zahaf 2008). Considering that organic producers are growing one of most traditional breeds in Spain, the ternera Gallega (Galician veal), my results are not consistent with the previous finding of Brugarolas (2009) who concluded that the growth of local products where consumers are "more identified" is one of the key elements for consumer support to local markets and makes them "willing to pay more" for such products.

Table 3.12: Factors affecting a consumer's decision when purchasing organic meat (between brackets the percentage of the total for each variable).

	Motivation													
Variable / description	*Price*		*Freshness*		*organic certification*		*The brand*		*Country of origin*		*Support of local producers*		*None/not read*	
Gender														
Males	66	(12.8)	147	(28.4)	175	(33.8)	32	(6.2)	44	(8.5)	41	(7.9)	12	(2.3)
Females	77	(12.9)	282	(47.4)	107	(18.0)	29	(4.9)	58	(9.7)	31	(5.2)	11	(1.8)
Age groups														
16-24 years	22	(27.8)	24	(30.4)	12	(15.2)	4	(5.1)	6	(7.6)	7	(8.9)	4	(5.1)
25-34 years	33	(16.9)	75	(38.5)	42	(21.5)	8	(4.1)	19	(9.7)	16	(8.2)	2	(1.0)
35-44 years	21	(10.4)	80	(39.8)	61	(30.3)	8	(4.0)	15	(7.5)	16	(8.0)	0	(0.0)
45-54 years	25	(13.8)	54	(29.8)	55	(30.4)	10	(5.5)	25	(13.8)	9	(5.0)	3	(1.7)
55-64 years	19	(11.6)	67	(40.9)	42	(25.6)	10	(6.1)	12	(7.3)	8	(4.9)	6	(3.7)
≥65 years	23	(7.9)	129	(44.2)	70	(24.0)	21	(7.2)	25	(8.6)	16	(5.5)	8	(2.7)
Education														
No studies	7	(8.0)	40	(46.0)	20	(23.0)	3	(3.4)	9	(10.3)	3	(3.4)	5	(5.7)
Primary school	49	(12.5)	170	(43.4)	83	(21.2)	26	(6.6)	40	(10.2)	21	(5.4)	3	(0.8)
High school	29	(14.7)	73	(37.1)	46	(23.4)	9	(4.6)	18	(9.1)	17	(8.6)	5	(2.5)
Technical education	27	(16.5)	49	(29.9)	53	(32.3)	9	(5.5)	11	(6.7)	10	(6.1)	5	(3.0)
Bachelor	11	(7.2)	56	(36.6)	58	(37.9)	5	(3.3)	14	(9.2)	7	(4.6)	2	(1.3)
No answer	0	(0.0)	0	(0.0)	2	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)

n=849

Consumer tust in organic certification

One of more important issues of the organic market is consumer trust, mainly because consumers are not able to verify if the products they are purchasing are organic or not, as consumers are not qualified or allowed by law to undertake an organic inspection to the places were the organic product they purchase were produced or processed. However, in the case of organic consumers in Galicia (table 3.13), despite the fact that males purchase on the basis of certification (see above), less than half of them (43%) had sufficient trust in the certification, 13% not at all and 32.4% had only a little trust in the organic certification. There were also age-related differences concerning trust in organic certification. The sample size for the 16-24 age group is smaller than for the other groups and perhaps less reliable for estimation of frequencies, but if this group is ignored, the >65 age group seems to have slightly lower "much confidence." In contrast, the data for "no confidence" indicate a more robust trend, with the frequency of respondents in this category increasing progressively with age, with 19.3% of 65 year olds having no confidence in certification (Table 3.8). This may be related to an extended dissatisfaction in Spain regarding food quality controls (Mora et al. 2006). For undertaking quality control, the certification bodies must be accredited. Accreditation is the process by which an accreditation body gives a formal recognition that the personnel of a certification body are competent to carry out the specific tasks of food certification (Rundgren 2005b). However, in Spain none of the public certification bodies are accredited (Rundgren 2002). At the same time, consumer trust in the organic label implies belief that the label represents consistent standards (Bellows et al. 2008) and will ultimately impact consumer product perception (Essoussi & Zahaf 2008; Wong 2008). However, in the case of Galician consumers the lack of trust in the organic certification could represent a considerable obstacle for the development of the organic market in Galicia (Hamzaoui & Zahaf 2008), considering that the aims of organic alternative networks are based on a close relationship and trust between producers and consumers around a common element, in this case organic beef (Goodman 2003; Marsden 2000a; Murdoch et al. 2000).

Table 3.13: Consumer trust in organic certification (between brackets the percentage of the total for each variable).

	Much		*Sufficiently*		*Little*		*Not at all*		*No answer*	
Gender										
Males	75	(19.4)	166	(43.0)	88	(22.8)	45	(11.7)	12	(3.1)
Females	75	(16.3)	154	(33.3)	150	(32.4)	60	(13.0)	24	(5.2)
Age groups										
16-24 years	10	(15.9)	25	(39.7)	22	(34.9)	2	(3.2)	4	(6.3)
25-34 years	32	(20.5)	66	(42.3)	45	(28.8)	12	(7.7)	1	(0.6)
35-44 years	33	(18.5)	88	(49.4)	39	(21.9)	16	(9.0)	2	(1.1)
45-54 years	29	(18.8)	56	(36.4)	43	(27.9)	20	(13.0)	6	(3.9)
55-64 years	24	(18.2)	33	(25.0)	42	(31.8)	23	(17.4)	10	(7.6)
≥65 years	22	(13.3)	52	(31.3)	47	(28.3)	32	(19.3)	13	(7.8)
Education										
No studies	1	(3.6)	8	(28.6)	9	(32.1)	6	(21.4)	4	(14.3)
Primary school	37	(14.3)	77	(29.7)	75	(29.0)	47	(18.1)	23	(8.9)
High school	37	(22.6)	61	(37.2)	46	(28.0)	17	(10.4)	3	(1.8)
Technical educ.	25	(16.6)	64	(42.4)	50	(33.1)	9	(6.0)	3	(2.0)
Bachelor	21	(15.1)	70	(50.4)	33	(23.7)	14	(10.1)	1	(0.7)
No answer	0	(0.0)	0	(0.0)	1	(50.0)	1	(50.0)	0	(0.0)

n=849

Consumer´s definition of organic food

Table 3.14 indicates that 36.7% of Galician consumers consider that organic food is "chemical-free" (45.1% of males and 39.7 of females), "without insecticides and pesticides" (39.5% of females) and "natural" (34% of females). With respect to “chemical-free”, several studies demonstrate consumer concern for chemical residues in food products (Storstad & Bjorkhaug 2003) and particularly in meat products (Knowles et al. 2007; Krystallis & Arvanitoyannis 2006; Sofos 2008). Indeed, these concerns are one of the reasons for an increase in consumer interest in organic food (Sangkumchaliang & Huang 2012). Galician consumers ranked “without insecticides and pesticides” second, indicating concerned or very concerned with residues, as found by previous research (Boccaletti & Nardella 2000; Collins et al. 1993). My findings for the Galician consumer shows that concern increases with the level of education from 32% of consumers that undertook no studies to 45% of consumers with a bachelor degree. “Natural” was ranked third place and may indicate a perception that

organic farming implies ‘products grown naturally’ (Chen 2007; Hutchins & Greenhalgh 1997). This perception also increases with the level of education from 32.1% for Galician consumers with no studies to 41% for consumers with a bachelor degree.

"Healthier" was mentioned by 26.9% of females and "without preservatives” mentioned by about 22.2% of females. These findings are consistent with those of Padel and Foster (2005) who also found that consumer decisions depend basically on the product characteristics, where the absence of preservatives is an important factor. Zanoli (2004) and Meldrum (2006) also found that health was a major factor for buying organic produce. However, even when healthier was not selected in the first group of priorities by Galician consumers, consumers perceive organic food as healthier than conventional alternatives (Beharrel 1991; Idda et al. 2008a). An important issue emerging from this finding is that organic attributes should be emphasised more in organic promotional campaigns, as also argued by Soler and Gil (2002).

For GMOs, consumers with higher education had the highest concern (technical education 4.0%; bachelors 2.9%). Females (3.2%) were more concerned about GMO than males (0.5%) as also found by (Angulo & Gil 2007b). Contrary to previous work on consumer response to GM foods in different countries (Boccaletti 2000; Burton 2001), the Galician consumer made little association between organic production and GMO-free. This is probably because of the generally low concern of Spanish consumers regarding GMO food due either to their greater tolerance of GM food compared to French and Nordic consumers (Costa-Fon et al. 2008) or because of the low level of knowledge and information regarding GMO food compared to consumers in other EU countries (Noomene & Maria Gil 2006). With respect to knowledge and understanding of GMO food, the role of the public sector is fundamental for providing objective information so that consumers can make informed choices (Costa-Fon et al. 2008).

Table 3.14: Galician consumer definition of organic food (between brackets the percentage of the total for each variable).

	Natural		*Chemical-free*		*Healthier*		*No preservatives*		*Without insecticides, pesticides*		*Environmental friendly*		*Good Quality*		*GMO free*	
Gender																
Males	133	(34.5)	174	(45.1)	122	(23.6)	84	(21.8)	133	(34.5)	15	(3.9)	9	(2.3)	2	(0.5)
Females	161	(34.8)	184	(39.7)	160	(26.9)	112	(24.2)	183	(39.5)	30	(6.5)	15	(3.2)	15	(3.2)
Age groups																
16-24 years	22	(34.9)	17	(27.0)	26	(32.9)	16	(25.4)	9	(14.3)	10	(15.9)	1	(1.6)	3	(4.8)
25-34 years	55	(35.3)	76	(48.7)	53	(27.2)	40	(25.6)	54	(34.6)	5	(3.2)	2	(1.3)	6	(3.8)
35-44 years	69	(38.8)	94	(52.8)	47	(23.4)	45	(25.3)	88	(49.4)	12	(6.7)	2	(1.1)	3	(1.7)
45-54 years	44	(28.6)	61	(39.6)	49	(27.1)	28	(18.2)	64	(41.6)	6	(3.9)	8	(5.2)	3	(1.9)
55-64 years	45	(34.1)	55	(41.7)	43	(26.2)	34	(25.8)	53	(40.2)	8	(6.1)	3	(2.3)	2	(1.5)
≥65 years	59	(35.5)	55	(33.1)	64	(21.9)	33	(19.9)	48	(28.9)	4	(2.4)	8	(4.8)	0	(0.0)
Education																
No studies	9	(32.1)	7	(25.0)	17	(19.5)	2	(7.1)	9	(32.1)	1	(3.6)	1	(3.6)	0	(0.0)
Primary school	76	(29.3)	96	(37.1)	93	(23.7)	58	(22.4)	95	(36.7)	7	(2.7)	10	(3.9)	2	(0.8)
High school	54	(32.9)	61	(37.2)	52	(26.4)	38	(23.2)	53	(32.3)	13	(7.9)	3	(1.8)	3	(1.8)
Technical education	61	(40.4)	77	(51.0)	34	(20.7)	30	(19.9)	60	(39.7)	9	(6.0)	5	(3.3)	6	(4.0)
Bachelor	57	(41.0)	79	(56.8)	42	(27.5)	39	(28.1)	63	(45.3)	12	(8.6)	2	(1.4)	4	(2.9)
No answer	1	(50.0)	2	(100.0)	0	(0.0)	0	(0.0)	2	(100.0)	0	(0.0)	0	(0.0)	0	(0.0)

n=849

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CHAPTER 4

Conclusions and Final Synthesis

Summary of thesis aims and results

The primary aim of this thesis was to evaluate the interaction between the parameters that underpin the geography of organic food at local and global scales using organic certification as the underpinning theme. The approach taken adopts some of the core elements of quality conventions theory in order to understand at the global scale the quality conventions that establish "orders of worth" (Boltanski & Thévenot 2006). These orders of worth are subjected to a reality test (Thévenot 2009) through a rigorous evaluation of EU-US equivalence agreements with respect to organic standards and their possible implications for the local scale. At a local level, the research focused on "socially constructed criteria" (Marsden 1998) from the communication between farmers and consumers, that support the "trust in organic farmers" (Migliore et al. 2014) as well as the market strategies used by organic producers for addressing consumer expectation on the quality of food produced.

As stated in this thesis, food standards are becoming increasingly relevant as supply chains grow with new market niches and an increased need for product differentiation (Giner 2009). This growth is also associated with growing numbers of consumers who are increasingly concerned about what is in their food (Blair 2012) and where their meat comes from BEUC (2013). Thus, standards should play an important tool in the re-construction of modern food supply systems (Busch 2000; Hatanaka 2008) and in the quality assurance and certification of a product. As such, it is important the way standards are formulated and the ethics applied in the validation criteria (Busch 2011b; CEDEFOP 2009).

By using a case study approach involving focus group meetings and questionnaire surveys, I was able to explore both the quality convention of the main relevant international organic standards and the direct social interaction between producers and consumers that leads to quality conventions.

In Chapter 2 of this thesis, I focused on an analysis of the quality convention between the EU and US governments for the equivalence agreement between the EU Regulation for organic farming and the National Organic Program (NOP) of USDA following a mutual recognition by these bodies that the regulations are equivalent. My analysis revealed that there are several technical differences between the two standards that indicate that they are not in fact equivalent. This is significant because recognition of equivalence between standards allows organic products to be accepted as fulfilling the regulatory requirements of importing countries. It is clear from my analysis that organic meat presently imported from the United States into Europe does not fully comply with Council Regulation (EC) No. 834/2007 of 28 June 2007 on organic production and labelling of organic products. It is surprising that, despite substantial investment by UNCTAD, FAO and IFOAM in producing useful and flexible tools for undertaking equivalence agreements (EquiTool and IROCB), these tools have yet to be applied to any government-to-government equivalence arrangements. Also, it is important to note that whilst the NOP is more precise, clearer and easier to understand, in contrast the EU Regulation goes into much more detail for it application. I argue that, in effect, the NOP-EU regulation has led to a lowering down of the EU Organic Regulation in the existing equivalence agreement, therefore specific animal welfare and safety issues regulated into the EU organic legislation are not met by organic meat imported into the EU.

Proper equivalence agreements should make it possible to maintain distinct regulatory measures while at the same time removing trade restrictiveness and reducing transaction costs and improving market efficiency (Busch 2010). For this to work, it is necessary to provide a common language for market participants (Clayton & Preston 2003). Therefore, an equivalence agreement should ensure that deceptive practices are avoided and that there is no confusion amongst consumers. For the EU consumer, therefore, any equivalence agreement should be based on EU Treaty principles, such as procedural fairness, mutual recognition, proportionality and effective governance maintained through standards which implies establishing legal regimes that including clear sanctions (Busch 2010).

This also raises the question as to how a new ´globalized-equivalenced´ organic food is embedded within alternative food networks defined by quality, transparency and locality (Goodman 2003; Sonnino & Marsden 2006). A review of the literature in chapter 2 showed that the growth of the organic market is favoured by equivalence agreements, reflected in an

increase in international sales of organic products by 170 percent since 2002 until 2013 when this market reached more than $63 billion, with the main organic markets (the EU and US) comprising more than 90 percent of of organic global revenues (Willer & Lernoud, 2014). In the growth of this organic market the requirements by new consumers for quality characteristics of organic products are closer to those of conventional products (Miele 2001). In effect, this market growth reflects a linear transition from small scale "authentic" agriculture to a more industrialised form of capitalism production "conventionalization" (Guthman 2004). As a consequence, locally produced organic products are making "dramatic inroads" into conventional distribution channels (Raynolds 2004). The socioeconomic consequences of this "conventionalization" of organic agriculture could lead to the replacement of small farms by larger farms and a switch from family farming to capitalist entrepreneurship (Buck et al. 1997; Guthman 2004), resulting in "negative power disparities" and negative impacts of their production and marketing activities (Guthman 2004). This growth is also forcing strategic alliances of local producers with producers in other locations for providing retailers with a year-round supply of "consistent quality" (Busch & Bain 2004).This growth of the organic market is associated with a growth in the organic input market, causing a move from on-farm input production to inputs purchased in the growing organic input market, such as companies specializing in compost production and other inputs (Buck et al. 1997).

However, as argued by Sonnino and Marsden (2006), there is also a more holistic understanding where local economic activities are formed in rural areas, where local does not imply a territory. In this context, embeddedness assumes wider meaning as it embraces also "the economic, environmental, cultural, and political dimensions of food networks" (Sonnino & Marsden 2006) and the local place includes a proactive form of bioregionalism that emphasizes the ecology, history and qualities of a place (Sonnino 2007). In this way, products sold outside of the region of production keep the necessary information (in labels or packaging) regarding the place of production and the organic production methods used enabling consumers to make this local connection (Marsden 2004; Sonnino 2007). The key point here is the challenge for the consumer to differentiate at the market place an embedded organic product from a globalized-equivalenced organic one produced under very "intensive-organic" production methods, because neither the EU nor the NOP regulation have any

indication of organic-locality, or "authentic-organic". Therefore, the organic label and organic indication will be the same for both kinds of organic productions.

Similarly, the consumer needs to have information on the organic production methods used as none of these standards makes any distinction between "authentic-organic-production" methods base on organic principles and a "more-intensive" organic production where the main objective is to make profit. Here I disagree with Rosin & Campbel (2009) who consider the move of corporate actors into the organic food system as one of several alternative organic food systems. I consider that the organic market depends on its genuine/legitimate organic value to survive and it conventionalisation de-legitimises it and could lead to a decrease in organic consumption (Goodman et al. 2012; Miele 1999). However, this raises the question of how to counter such de-legitimisation, by the application of alternative standards of "purity and perfection." (DuPuis & Goodman 2005). If this is done, will the 'worlds of production' of organic markets be characterized in terms of "standardized-generic" (globalized-equivalenced) and "specialized-dedicated" (genuine/legitimate) organic products? (Goodman & DuPuis 2002); Also, will genuine-legitimate or purity standards also be appropriated by food corporations? (DuPuis & Goodman 2005). I consider that the way to legitimise the organic value at the global level is through a proper implementation of a Tripartite Standards Regime: standards, certifications and accreditations (Busch 2011a) on the basis of the ecological, moral and aesthetic values and qualities of food (Miele 1999; Miele & Murdoch 2002; Sonnino 2007), where consumers, producers and the sector could be represented at the global quality convention where organic standard development or standard equivalence takes place.

One can conclude that equivalence agreements could facilitate market access for exporters, but not necessarily guarantee genuine organic quality to consumers. In the process of establishing quality conventions at the global level, direct participation of consumers and small producers is needed because such conventions decide not only market trends but also the future of the geographies of organic food.

In Chapter 3, I attempted a deeper understanding of how the values and qualities of food products are mediated in an alternative organic food chain. I did this by trying to understand the "socially constructed criteria" (Marsden 1998) that emerge from the communication between farmers and consumers, which are predicted to develop and support trust in organic

farmers (Migliore et al. 2014) and facilitate the market. First, I evaluated the knowledge and information held by both consumers and producers in relation to organic food. The research placed attention on producers because most previous research has been from the consumer perspective, in particular by evaluating how retail strategies of producers address consumer expectation regarding organically certified beef. By doing so, I hoped to contribute to a deeper understanding of those aspects of organic farmer marketing strategies which either militate against or contribute to success.

Galician consumers were found to use a variety of sources when obtaining information about food products. The most frequently stated sources were television, presence of these foods at their store, newspapers and magazines. For organic producers, television radio and newspapers were stated as valuable sources information and this is consistent with findings from other studies (Fawole 2008). However, considering the low promotion of organic food in Spain compared with other EU countries (Gonzálvez & Moreno 2008) together with the lack of information on the organic market in Spanish television, radio or newspapers (MAGRAMA 2007), it is likely that both organic consumers and producers do not have sufficient information either for purchasing organic food (consumers) or for the development of retail strategies (producers). As an example of poorly informed consumers, a previous study carried out by Gil et al. (2000) in the Navarra and Madrid regions of Spain found that consumers define organic simply as food where fertilizers were not used in production. Also, it seems that organic producers are not convinced of the importance of direct interactions with consumers as a source of information for their marketing strategies because only 7.7% of producers actually seek information from consumers. Clearly, organic producers are not contributing significantly to the increased awareness of Galician consumers about organic products.

My analysis (Table 4.1) showed some disconnections between those aspects of products best appreciated by the consumer and what producers think consumers appreciate. For Galician organic consumers, freshness is the most important factor, while for the producers this was taste. According to Steenkamp (1997), consumers use quality cues for purchasing their products and these can be intrinsic, such as colour and texture (physical characteristics), or extrinsic, such as brand name and points of sale. Some cues like freshness provide information about a product that can be verified by the consumer prior to making a purchase. Importantly,

the origin was ranked by producers as sixth in importance, whilst for consumers origin was ranked fourth.

Table 4.1: Scoring for meat attributes of those aspects of products best appreciated by the consumer and what producers think consumers appreciate.

Meat attributes	*For producers*	*For consumers*
The freshness	3	1
The taste	1	-
The price	2	3
Locally produced	6	5
The brand	5	6
The certification	4	2
The origin	6	4

For the locality of production and the brand, it seems there is a better agreement between producer and consumer. In contrast, organic certification was ranked as second by consumers and, perhaps surprisingly, for producers it was ranked fourth. However, when further analysing consumer confidence in organic certification, the results are not so clear cut since less than half of consumers (43%) has sufficient trust in organic certification and 32.4% have only a little trust, possibly because consumers have concerns over the authenticity and reliability of organic certification, as found by (Botonaki et al. 2006; Gerrard et al. 2013; Miele 2001).

The quality of the meat quality seems to plays a major role for Galician consumers (ranked second) in determining purchases and this was also the case for producers, but producers are not effectively communicating meat quality information to consumers. There is also some disconnection between consumers and producers with respect to the producers' most important marketing strategy (highlighting the origin of the meat): consumers ranked this as their fourth priority when making a purchasing decision. The marketing strategy of using other quality marks has additional cost implications so that to undertake such a strategy without any market research of consumer opinion would be no guarantee of success.

Galician producers and consumers did not seem conscious of environmentally-related issues surrounding organic production and this may be related to the poor level of information in

Spain regarding the methods of organic food production. For producers this is of concern because the process of organic conversion according to the relevant EU Regulation implies the "transition from non-organic to organic farming" where provisions concerning the organic production have been applied. These provisions not only relate to soil and animals but to the thinking of producers. It is possible that prior to certification farmers have a lack of information and knowledge about organic farming, but after certification producers are expected to fully understand, apply and be aware of the agro-ecology principles surrounding organic certification. In this sense, it is noteworthy that Brugarolas et al. (2005) showed that willingness to pay for organic food is higher for Spanish consumers concerned about the environment; implying that environmental concerns should strongly influence decisions to purchase organic products and this should be highlighted in producer marketing strategies.

Finally, barriers for network developments were explored in the thesis. Producers identified lack of consumer knowledge of organic labelling as a major barrier. This could be related to the lack of communication between farmers and consumers, which in turn does not foster a relationship of trust (Feenstra 1997; Renting et al. 2003a), and could be one of main reasons for the slow development of the organic market in Galicia. Direct personal contact makes it possible for the consumer to achieve detailed information about products, production methods and specific producers which could contribute to increased consumer confidence in organic products. The failure to develop and maintain this direct connection means that the producer does not receive consumer feedback on the meat attributes which they most appreciate. For producers such feedback could provide them with very important information on locality, price, taste and freshness factors that play an important role in the distinctiveness of organic over conventional products (Rannia Nijhoff-Savvaki 2012) and which they can develop and use in their marketing strategies. Organic knowledge is of "vital importance for the development of organic food sector" (European Commission 2004), as this knowledge "directly determines" consumer decisions or intentions to buy an organic product (Magistris & Gracia 2008). Consumers are increasingly worried about the quality and safety of the food they purchase and their confidence in retailers and manufacturers is declining (Harrington 2009), partly reinforced by the ignorance of many consumers about different food quality certifications (e.g., organic food, Protected Designation of Origen (PDO), etc.) (Tsakiridou 2009). My research demonstrates that the links between consumers and producers require

considerable attention if producers and consumers are to obtain the benefits of an organic local market (Miele & Pinducciu 2001).

Conclusions

In conclusion, this study illustrates the implication of quality conventions at local and global levels. At the global level, international equivalence agreements are a way of reconfiguring the organic market. It seems that in this reconfiguration of the global space there are forces, probably from corporate interests, that are being imposed on the technical process of equivalence, as revealed by the fact that the USDA and the EU organic regulations are not at all equivalent. One cannot therefore guarantee that organic meat imported from the US has been produced in compliance with the animal heath and welfare requirements as meat produced in Europe. As suggested by convention theory, the power of equivalences is rooted in the politics of qualification, but also in fairness which is in contrast with the broader social movement that considers food as a human right rather than as a commodity (Goodman 2004; Hinrichs 2003). This civic convention constitute the engine for legitimacy or the organic food which organic standards can not do (Goodman et al. 2012).

My research highlights the fact that an equivalence agreement facilitates the removal of trade barriers but can also contribute to the conventionalization of organic farming, which may act contrary to the principles of organic production methods including sustainability and environmental protection. During the review of those principles and standards, I found that the bureaucratic and technical language of the EU Regulation is likely to cause difficulties of understanding and interpretation for both producers and consumers.

At the local level, my findings concerning the effectiveness of the 'connection' between producers and consumers that reconnects consumers, producers and food (Marsden 2000; Renting et al. 2003; Sage 2003) revealed an urgent need to reconfigure this relationship. Building a trustworthy relationship with consumers is essential not only for conducting business (Cannaon 1994), but for the development and maintenance of an efficient and sustainable organic food network. Direct marketing should create bonds of trust and cooperation between farmers and consumers (Jarosz 2000; Sage 2003). This local quality convention needs more support from the EU as the EU Organic regulation and logo does not differentiate local small-scale organic production from more intensive large-scale organic

production, so that new certification initiatives or logos need to be developed to contribute to the sustainability of local initiatives. This should include the role of organic certification organisations, as well as producer strategies for selecting among them (Rosin & Campbell 2009).

It is widely acknowledged that mainly cognitive processes drive consumer attitudes, so that for producers it is important to identify those attitudes in order to be able to persuade the consumer about the safety, animal welfare, quality assurance and environmental protection features of organic certified beef production. At the government level such campaigns could also persuade conventional farmers to convert to organic production as well as of the benefits of consuming organic meat (McEachern & Willock 2004; Miele & Pinducciu 2001) and on the natural attributes of organic food products in general (Gil et al. 2000).

Constraints of the present study and recommendations for future research.

This research took a specific focus on the region of Galicia in Spain, and the main data analysis section takes the form of a case study. As a consequence, the findings are specific to those sample farms for which data were provided, but I believe that they are representative of the wider region of Galicia. The questionnaire survey (849 consumers) is large by normal standards and it gives me confidence in the rigour of my results. Furthermore, the Galician results may well have broader application elsewhere in Europe with similar cultural histories and strong regional identities. Given the constraints of logistics, time, energies and resources, one always has to make a trade-off between specificity and generality. It would be as interesting to take the approach developed here in this thesis to other regions to evaluate the generality (or not) of my findings and to make comparisons that would allow clearer interpretation of some of my findings, for instance, in regions for where there is much higher consumption of organic produce, and with different kinds of products other than meat. The results obtained with the producers approach used in this research demonstrate the importance of investigating producer knowledge, behaviour and willingness to engage in a relationship with consumers, as part of the local market development, an area which has not been much investigated. Further research and consultation should be undertaken with respect to the producer and consumer understanding of the EU regulation and organic private food standards

as well as understanding how farmers markets and locally organic grown foods can contribute to the overall sustainability of food systems.

More generalizable perhaps are my findings concerning the lack of equivalence of EU and US regulations, and the surprising lack of implementation of the available tools specifically designed for resolving such. Specifically, is there similar non-equivalence of other conventions that have been agreed for trade in other kinds of products with the EU? And is the US alone in this respect? One fascinating area for research, but which was outside the scope of this thesis, is the extent to which power play and lobbying from major corporations and sectors contributes to the wording of regulations. There is an indication of such in the present study, at least in the US regulation, and it would be interesting to dig deeper into any political lobbying that may go on with the EU system. In addition, the wording of the EU regulation could be particularly challenging for producers and consumers, especially at the level of the individual farm in economically disadvantaged regions with lower levels of literacy and this will do little for improved understanding of sustainable organic production or give confidence to consumers about organic produce. The modification of the Equitool methodology used in this research could constitute an important tool not only for governments while undertaking standard equivalence studies but also for National Accreditation bodies especially in Europe where the majority of organic food is imported. Further research is needed to explore the equivalences agreements currently in place between the EU with Central and Latin-American countries.

Recommendations

This study reveals a number of weaknesses and includes recommendations for improvement that could contribute to the academic and policy debate on organic production, marketing and quality control at local and global scales. The following recommendations aim to help the system further develop and expand without losing its organic authenticity.

Bureaucratic and complex organic regulation: Particular attention needs to be paid in developing a clear regulation which is easy to understand by both producers and consumers. In this way, simple rules could facilitate enforcement and control on the base of better understanding for all parts involved.

Unfair equivalence agreements: The EU must create a protocol of transparency for undertaking equivalence agreements between the EU and outside countries. At the international level, this protocol must constitute an ISO/IEC standard that is checked by the National Accreditation bodies.

Guaranteeing fair competition for organic farmers: There is no distinction between local and global certified products in the EU organic regulation, which needs to develop a certification system in order to help small-scale local farmers enter the supply chain.

Inadequate knowledge about the benefits of organic farming: Many misperceptions and misunderstandings remain between producers and consumers about the contemporary character of organic farming and it seems agricultural policymakers are not fully aware of the environmental, conservation and energy-related benefits of organic farming. Educational programs could help to overcome these barriers.

Lack of Information on organic marketing: Little research and published information are available to help organic farmers resolve the problems they encounter in the development and implementation of organic markets.

Future research

I consider that there are important issues that should be addressed in future research to take advantage of organic farming and marketing: At the global level, the analysis of equivalence agreement practices enables research in this area to explore further how organic standards and conventions contribute to complex mixes of embedeness and disembedeness in organic acriculture networks. At the local level, the consumer-producer interface, consumers are not confident with the organic certification. This lack of confidence reinforces asymmetric information problems between producers and consumers, so that producers may not benefit from obtaining the premium price of the organic market.

Consumer expectations regarding organic standards need to be addressed through research and careful monitoring. Organic standards should be developed and adapted locally, and the

harmonisation of standards should create a reliable inspection system and simple and conspicuous labelling.

APENDIX 1

Database for the EU regulation and NOP comparison

DATABASE FOR STANDARDS COMPARISON

1. Origin of animals

Article	*EU Regulation*	*Article*	*NOP*	*Evaluator's comments*
889.08.1	In the choice of breeds or strains, account shall be taken of the capacity of animals to adapt to local conditions, their vitality and their resistance to disease. In addition, breeds or strains of animals shall be selected to avoid specific diseases or health problems associated with some breeds or strains used in intensive production, such as porcine stress syndrome, PSE Syndrome (pale-soft-exudative), sudden death, spontaneous abortion and difficult births requiring caesarean operations. Preference is to be given to indigenous breeds and strains.	§ 205.238.1	§ 205.238.1 Selection of species and types of livestock with regard to suitability for site-specific conditions and resistance to prevalent diseases and parasites;	NOP standard is not as precise as EU regulation regarding the selection of species of livestock but it is equivalent

889.9.1	In accordance with Article 14(1)(a)(ii) of Regulation (EC) No 834/2007, non-organic animals may be brought onto a holding for breeding purposes, *only when organic animals are not available* in sufficient number and subject to the conditions provided for in paragraphs 2 to 5 of this Article.	205.236.a.3	§ 205.236.a Livestock products that are to be sold, labelled, or represented as organic must be from livestock under continuous organic management from the last third of gestation or hatching: Except, That: 3.Breeder stock. Livestock used as breeder stock may be brought from a nonorganic operation onto an organic operation at any time: Provided, That, if such livestock are gestating and the offspring are to be raised as organic livestock, the breeder stock must be brought onto the facility no later than the last third of gestation. b.2. Breeder or dairy stock that has not been under continuous organic management since the last third of gestation may not be sold, labelled, or represented as organic slaughter stock.	NOP exceeds EU requirements
889.09.2.a	2. Non-organic young mammals, when a herd or flock is constituted for the first time, shall be reared in accordance with the organic production rules immediately after they are weaned. Moreover, the following restrictions shall apply at the date on which the animals enter the herd: (a) buffalo, calves and foals shall be less than	205.236.a.3	(3) Breeder stock. Livestock used as breeder stock may be brought from a nonorganic operation onto an organic operation at any time: Provided, That, if such livestock are gestating and the offspring are to be raised as organic livestock, the breeder stock must be brought onto the facility no later than the last third of gestation.	NOP is more restrictive, the breeder stock must animals born or brought onto the operation shall be under organic management from the last third of gestation

	six months old;			
889.09.3.a,b	Non-organic adult male and nulliparous female mammals, for the renewal of a herd or flock, shall be reared subsequently in accordance with the organic production rules. Moreover, the number of female mammals is subject to the following restrictions per year: (a) up to a maximum of 10 % of adult equine or bovine, including bubalus and bison species, livestock .... (b) for units with less than 10 equine or bovine animals, ...	§ 205.236.a.3	§ 205.236(3) Breeder stock. Livestock used as breeder stock may be brought from a nonorganic operation onto an organic operation at any time: Provided, That, if such livestock are gestating and the offspring are to be raised as organic livestock, the breeder stock must be brought onto the facility no later than the last third of gestation.	Livestock used as breeding stock may be obtained from a nonorganic operation. They must be managed organically, and while they may be used to produce organic offspring, the breeding animals themselves may not be sold as organic slaughter stock. NOP standard does allows replacement of animals, therefore is more restrictive.
889.09.4.a	4. The percentages referred to in paragraph 3 (Non-organic adult male and nulliparous female mammals, for the renewal of a herd or flock, shall be reared subsequently in accordance with the organic production rules. Moreover, the number of female mammals is	§ 205.236.a.3	§ 205.236(3) Breeder stock. Livestock used as breeder stock may be brought from a nonorganic operation onto an organic operation at any time: Provided, That, if such livestock are gestating and the offspring are to be raised as organic livestock, the breeder stock must be brought onto the facility	NOP standard does not allows non-organic animals for replacement

	subject to the following restrictions per year:)may be increased up to 40 %, subject to prior authorisation by the competent authority, in the following special cases: (a) when a major extension to the farm is undertaken;		no later than the last third of gestation.	
889.9.4.b	4. The percentages referred to in paragraph 3 may be increased up to 40 %, subject to prior authorisation by the competent authority, in the following special cases: (b) when a breed is changed;	§ 205.236.a.3	§ 205.236(3) Breeder stock. Livestock used as breeder stock may be brought from a nonorganic operation onto an organic operation at any time: Provided, That, if such livestock are gestating and the offspring are to be raised as organic livestock, the breeder stock must be brought onto the facility no later than the last third of gestation.	NOP standard does not allows non-organic animals for replacement
889.9.4.c	4. The percentages referred to in paragraph 3 may be increased up to 40 %, subject to prior authorisation by the competent authority, in the following special cases: (c) when a new livestock specialisation is initiated;	§ 205.236.a.3	§ 205.236(3) Breeder stock. Livestock used as breeder stock may be brought from a nonorganic operation onto an organic operation at any time: Provided, That, if such livestock are gestating and the offspring are to be raised as organic livestock, the breeder stock must be brought onto the facility no later than the last third of gestation.	NOP standard does not allows non-organic animals for replacement

889.9.4.d	4. The percentages referred to in paragraph 3 may be increased up to 40 %, subject to prior authorisation by the competent authority, in the following special cases: (d) when breeds are in danger of being lost to farming as laid down in Annex IV to Commission Regulation (EC) No 1974/2006 (1) and in that case animals of those breeds must not necessarily be nulliparous.	§ 205.236.a.3	§ 205.236(3) Breeder stock. Livestock used as breeder stock may be brought from a nonorganic operation onto an organic operation at any time: Provided, That, if such livestock are gestating and the offspring are to be raised as organic livestock, the breeder stock must be brought onto the facility no later than the last third of gestation.	NOP standard does not allows non-organic animals for replacement
889.47.a	The competent authority may authorise on a temporary basis: (a) in the case of high mortality of animals caused by health or catastrophic circumstances, the renewal or reconstitution of the herd or flock with non-organic animals, when organically reared animals are not available;	§ 205.290.1-3	§ 205.290 Temporary variances. (a) Temporary variances from the requirements in §§ 205.203 through 205.207, 205.236 through 205.240 and 205.270 through 205.272 may be established by the Administrator for the following reasons: (1) Natural disasters declared by the Secretary; (2) Damage caused by drought, wind, flood, excessive moisture, hail, tornado, earthquake, fire, or other business interruption; and (3) Practices used for the purpose of conducting research or trials of techniques, varieties, or ingredients used in organic production or handling.	equivalent, there is no significant variation

2. Housing conditions

Article	*EU*	*Article*	*NOP*	*Evaluator's comments*
889.10.1	Insulation, heating and ventilation of the building shall ensure that air circulation, dust level, temperature, relative air humidity and gas concentration, are kept within limits which are not harmful to the animals. The building shall permit plentiful natural ventilation and light to enter.	§ 205.239.a § 205.239.4.ii	§ 205.239.a The producer of an organic livestock operation must establish and maintain year round livestock living conditions which accommodate the health and natural behaviour of animals, including: (1) Year-round access for all animals to the outdoors, shade, shelter, exercise areas, fresh air, clean water for drinking, and direct sunlight, suitable to the species, its stage of life, the climate, and the environment § 205.239.4.ii Temperature level, ventilation, and air circulation suitable to the species; (iii) Reduction of potential for livestock injury;	equivalent, there is no significant variation
889.10.2	Housing for livestock shall not be mandatory in areas with appropriate climatic conditions to enable animals to live outdoors.	§ 205.239(b)(1)	§ 205.239.1 .....Continuous total confinement of any animal indoors is prohibited. Continuous total confinement of ruminants in yards, feeding pads, and feedlots is prohibited. § 205.239(b)(1) The producer of an organic livestock operation may provide temporary confinement or shelter for an animal because of:	equivalent, there is no significant variation

			(1) Inclement weather;	
889.10.3	The stocking density in buildings shall provide for the comfort, the well being and the species-specific needs of the animals which, in particular, shall depend on the species, the breed and the age of the animals. It shall also take account of the behavioural needs of the animals, which depend in particular on the size of the group and the animals' sex. The density *shall ensure* the animals' welfare by providing them with sufficient space to stand naturally, lie down easily, turn round, groom themselves, assume all natural postures and make all natural movements....	§ 205.238(a)4-5	§ 205.238(a) The producer must establish and maintain preventive livestock health care practices, including: (4) Provision of conditions which allow for exercise, freedom of movement, and reduction of stress appropriate to the species; § 205.239.4 Shelter designed to allow for: (i) Natural maintenance, comfort behaviours, and opportunity to exercise; (ii) Temperature level, ventilation, and air circulation suitable to the species; and (iii) Reduction of potential for livestock injury;	equivalent, there is no significant variation

889.10.4	The minimum surface for indoor and outdoor areas, and other characteristics of housing for different species and categories of animals, are laid down in Annex III. ANNEX III -Breeding and fattening bovine and equidae Indoors area (net area available to animals): Up to 100 kg live weight: 1,5 m2/head Up to 200 kg live weight: 2,5 m2/head Up to 350 kg live weight: 4,0 m2/head Over 350 kg live weight: 5,0 m2/head with a minimum of 1 m2/100 kg Outdoors area (exercise area, excluding pasturage) Up to 100 kg live weight: 1,1 m2/head Up to 200 kg live weight: 2,9 m2/head Up to 350 kg live weight: 3,0 m2/head Over 350 kg live weight: 3,7 with a minimum of 0,75 m2/100 kg The minimum surface for indoor and outdoor areas, and other characteristics of housing for different species and categories of animals, are laid down in Annex III.		no in NOP standard	The NOP does not specify indoor or outdoor stocking densities

889.11.1	Livestock housing shall have smooth, but not slippery floors. At least half of the indoor surface area as specified in Annex III shall be solid, that is, not of slatted or of grid construction.		no in NOP standard	no in NOP standard
889.11.2	The housing shall be provided with a comfortable, clean and dry laying/rest area of sufficient size, consisting of a solid construction which is not slatted. Ample dry bedding strewn with litter material shall be provided in the rest area. The litter shall comprise straw or other suitable natural material. The litter may be improved and enriched with any mineral product listed in Annex I.	§ 205.238(a)3	§ 205.239(a) The producer of an organic livestock operation must establish and maintain year round livestock living conditions which accommodate the health and natural behaviour of animals, including: (3) Appropriate clean, dry bedding. When roughages are used as bedding, they shall have been organically produced § 205.239.4 Shelter designed to allow for: (i) Natural maintenance, comfort behaviours, and opportunity to exercise; (ii) Temperature level, ventilation, and air circulation suitable to the species; and (iii) Reduction of potential for livestock injury;	in general terms is equivalent, however NOP is more restrictive because beeding materials must be organic
889.11.3	Notwithstanding Article 3(3) of Council Directive 91/629/EEC (1) the housing of calves in individual boxes shall be forbidden after the age of one week.			Regulated by NOP (§ 205.239c.2: In the case of newborn dairy cattle for up to six months, after which they must be on pasture during the grazing season and may no

				longer be individually housed) only in the case of dairy cattle which is not equivalent to the EU regulation. Therefore no regulated for beef cattle

3. Access to open areas

Article	*EU Regulation*	*Article*	*NOP*	*Evaluator's comments*
889.14.1	Open air areas may be partially covered.	§ 205.239(a)(1)	§ 205.239(a) The producer of an organic livestock operation must establish and maintain year round livestock living conditions which accommodate the health and natural behaviour of animals, including: (1) Year-round access for all animals to the outdoors, shade, shelter	Equivalent, there is no significant variation

889.14.2	In accordance with Article 14(1)(b)(iii) of Regulation (EC) No 834/2007 herbivores *shall have access to pasturage* for grazing whenever conditions allow.	§ 205.237.c.1. § 205.239.b.1	§ 205.237.c.1. Ruminant animals must be grazed throughout the entire grazing season for the geographical region, which shall be not less than 120 days per calendar year. § 205.239 (a)(1) Year-round access for all animals to the outdoors, ... Except, that, animals may be temporarily denied access to the outdoors in accordance with § 205.239(b) and (c). § 205.239(b)The producer of an organic livestock operation may provide temporary confinement or shelter for an animal because of: (1) Inclement weather;	this is equivalent but NOP is more specific about pasture management and minimum access to pasture
889.14.3	In cases where herbivores have access to pasturage during the grazing period and where the winter-housing system gives freedom of movement to the animals, the *obligation* to provide open air areas *during the winter months* may be *waived*.	§ 205.239.a.1. § 205.239.b.1	§ 205.239.a.1.Year-round access for all animals to the outdoors....Except, that, animals may be temporarily denied access to the outdoors in accordance with §§ 205.239(b) and (c). § 205.239.b.1 The producer of an organic livestock operation may provide temporary confinement or shelter for an animal because of: (1) Inclement weather;	equivalent, there is no significant variation
889.14.4	Notwithstanding paragraph 2, bulls over one year old *shall have* access to pasturage or an open air	§ 205.2398.b.7	§ 205.239.b.7 Breeding: Except, that, bred animals shall not be denied access to the outdoors and, once bred, ruminants shall not be denied access to	NOP is more strict because the animals must have access to

	area**.**		pasture during the grazing season; or	pasture once bred.

4. Stocking density

Article	*EU Regulation*	*Article*	*NOP*	*Evaluator's comments*
889.15.1	The total stocking density shall be such as not to exceed the limit of 170 kg of nitrogen per year and hectare of agricultural area as referred to in Article 3(2).			NOP do no clarify on stoking density
889.15.2	To determine the appropriate density of livestock referred to above, the competent authority shall set out the livestock units equivalent to the above limit, taking as a guideline, the figures laid down in Annex IV or the relevant national provisions adopted pursuant to Directive 91/676/EEC. ANNEX IV Maximum number of animals per hectare referred to in Article 15 (2)			NOP do no clarify on stoking density

	Class or species Maximum number of animals per ha equivalent to 170 kg N/ha/year -Other bovine animals less than one year old: 5 -Male bovine animals from one to less than two years old: 3,3 -Female bovine animals from one to less than two years old: 3,3 -Male bovine animals two years old or over: 2 -Breeding heifers: 2,5 -Heifers for fattening: 2,5			

5. Management of animals

Article	*EU Regulation*	*Article*	*NOP*	*Evaluator's comments*
889.16	Landless livestock production, by which the operator of the livestock does not manage agricultural land and/or has not established a written cooperation agreement with another operator according to Article 3(3), is		§ 205.240 The producer of an organic livestock operation must, for all ruminant livestock on the operation, demonstrate through auditable records in the organic system plan, a functioning management plan for pasture.	the evaluator consider equivalent because NOP state that farmer should guarantee their livestock with pasture even when NOP Standard do not consider the possibility to reach agreements

	prohibited.			with other operators to comply with this requirement and do no specify the term landless
889.17.1 & 834.14.1.b.v	Non organic livestock may be present on the holding provided they are reared on units where the buildings and parcels are separated clearly from the units producing in accordance with the organic production rules and a different species is involved. 834: [b) with regard to husbandry practices and housing conditions:] ... v) organic livestock shall be kept separate from other livestock.	§ 205.201(5)	§ 205.201(5) A description of the management practices and physical barriers established to prevent commingling of organic and nonorganic products on a split operation and to prevent contact of organic production and handling operations and products with prohibited substances; and	equivalent, there is no significant variation
889.17.2	Non-organic livestock may use organic pasturage for a limited period of time each year, provided that such animals come from a farming system as defined in paragraph 3(b) and that organic animals are not present at the same time on that pasture.	§ 205.201(5)	§ 205.201(5) A description of the management practices and physical barriers established to prevent commingling of organic and nonorganic products on a split operation and to prevent contact of organic production and handling operations and products with prohibited substances;	Even when the NOP definition for separation of organic and non-organic is not as detailed as in the EU the evaluator consider it as equivalent

889.17.3	Organic animals may be grazed on common land, providing that: (a) the land has not been treated with products not authorised for organic production for at least three years; (b) any non-organic animals which use the land concerned are derived from a farming system equivalent to those as described in Article 36 of Regulation (EC) No 1698/2005 or in Article 22 of Regulation 1257/1999; (c) any livestock products from organic animals, whilst using this land, shall not be regarded as being from organic production, unless adequate segregation from non-organic animals can be proved.	§ 205.202(a)(b)	§ 205.202 Any field or farm parcel from which harvested crops are intended to be sold, labelled, or represented as "organic," must: (a) Have been managed in accordance with the provisions of §§ 205.203 through 205.206; (b) Have had no prohibited substances, as listed in § 205.105, applied to it for a period of 3 years immediately preceding harvest of the crop; and § 205.236.1 Livestock or edible livestock products that are removed from an organic operation and subsequently managed on a nonorganic operation may be not sold, labelled, or represented as organically produced.	NOP excess the EU requirements, the NOP does not allows organic animals to stay in non-organic certified land at any time
889.17.5	Operators shall keep documentary evidence of the use of provisions referred to in this Article.	§ 205.201.a.4 § 205.236.c	§ 205.201(a) The producer or handler of a production or handling operation... (4) A description of the recordkeeping system implemented to comply with the requirements established in §205.103; § 205.236 (c) The producer of an organic livestock operation must maintain records sufficient to preserve the identity of all organically managed animals and edible and non-edible animal products	equivalent, there is no significant variation

			produced on the operation.	
889.18.1	Operations such as attaching elastic bands to the tails of sheep, tail-docking, cutting of teeth, trimming of beaks and dehorning shall not be carried out routinely in organic farming. However, some of these operations may be authorised by the competent authority for reasons of safety or if they are intended to improve the health, welfare or hygiene of the livestock on a case-by-case basis. Any suffering to the animals shall be reduced to a minimum by applying adequate anaesthesia and/or analgesia and by carrying out the operation only at the most appropriate age by qualified personnel.	§ 205.238.a.5	§ 205.238(a) The producer must establish and maintain preventive livestock health care practices, including: (5) Performance of physical alterations as needed to promote the animal's welfare and in a manner that minimizes pain and stress;	NOP do no explain as detailed as the EU on the castrations, dehorning, etc, however, there is no significant variation
889.18.2	Physical castration is allowed in order to maintain the quality of products and traditional production practices but only under the conditions set out in the second	§ 205.238.a.5	§ 205.238(a) The producer must establish and maintain preventive livestock health care practices, including: (5) Performance of physical alterations as needed	physical alterations (castration, beak trimming, etc.) are allowed, if done to promote animal's

	subparagraph of paragraph 1.		to promote the animal's welfare and in a manner that minimizes pain and stress;	welfare and stress is minimized
889.18.4	Loading and unloading of animals shall be carried out without the use of any type of electrical stimulation to coerce the animals. The use of allopathic tranquillisers, prior to or during transport, is prohibited.			no regulate by NOP standard
889.46	The final fattening phase of adult bovines for meat production may take place indoors, provided that this indoors period does not exceed one fifth of their lifetime and in any case for a maximum period of three months.	§ 205.239.d	§ 205.239.d Ruminant slaughter stock, typically grain finished, shall be maintained on pasture for each day that the finishing period corresponds with the grazing season for the geographical location	NOP is more restricted because the continue access to outdoor. The fattening period of both standards is the same a fifth of the animal live
889.39	Where the conditions laid down in Article 22(2)(a) of Regulation (EC) No 834/2007 apply, competent authorities may authorize cattle in small holdings to be tethered if it is not possible to keep the cattle in groups appropriate to their behaviour requirements, provided they have access to pastures during the grazing period according to Article 14(2), and at least twice a week access to open air	§ 205.239.b	§ 205.239.b The producer of an organic livestock operation may provide temporary confinement or shelter for an animal…	The NOP standard is more restrictive because it permitted temporary confinement but not tethering

	areas when grazing is not possible.			

6. Animal feed

Article	*EU Regulation*	*Article*	*NOP*	*Evaluator's comments*
889.19.1 & 834.14.1.d.i	In case of herbivores, except during the period each year when the animals are under transhumance subject to Article 17(4), at least 60 % of the feed shall come from the farm unit itself or in case this is not feasible, be produced in cooperation with other organic farms in the same region.	205.237(a), (d) (ii)	(a) The producer of an organic livestock operation must provide livestock with a total feed ration composed of agricultural products, including pasture and forage, that are organically produced and handled by operations certified to the NOP. (d) Ruminant livestock producers shall: (ii) All feed purchased from off-farm sources;	NOP suggests that feed can also be brought from other organic farms (…produced and handled by operations…) and by requiring that the total feed ration must include all feed brought from outside the farm. But it does not set exact % and does not talk on transhumance

889.20.1	All young mammals shall be fed on maternal milk in preference to natural milk, for a minimum period of three months for bovines including bubalus and bison species and equidae, 45 days for sheep and goats and 40 days for pigs.			NOP does not specify any requirements for the lactation on young mammals
889.20.2	Rearing systems for herbivores are to be based on maximum use of grazing pasturage according to the availability of pastures in the different periods of the year. At least 60 % of the dry matter in daily rations of herbivores shall consist of roughage, fresh or dried fodder, or silage. A reduction to 50 % for animals in dairy production for a maximum period of three months in early lactation is allowed.	205.237 (1) (2) and 205.240	Ruminant animals must be grazed throughout the entire grazing season for the geographical region, which shall be not less than 120 days per calendar year. Due to weather, season, and/or climate, the grazing season may or may not be continuous. (2) Provide pasture of a sufficient quality and quantity to graze throughout the grazing season and to provide all ruminants under the organic system plan with an average of not less than 30 percent of their dry matter intake from grazing throughout the grazing season	More demanding in NOP because it specifies the minimum time of grazing and says that 30 % of dried matter in feed must come from grazing but the EU Regulation includes also fodder and silage in its 60% and describes in detail in a specific chapter 205.240) the pasture practical standard.
889.20.4	The keeping of livestock in conditions, or on a diet, which may encourage anaemia, is prohibited.			NOP does not specifically talk on preventing anaemia, but describes in high detail the grazing requirements and the need to allow animals to be outdoors, therefore this standard

				can be considered equivalent
889.20.5	Fattening practices shall be reversible at any stage of the rearing process. Force-feeding is forbidden.	205.238 (2)	(2) Provision of a feed ration sufficient to meet nutritional requirements, including vitamins, minerals, protein and/or amino acids, fatty acids, energy sources, and fibre (ruminants); (c) The producer of an organic livestock operation must not: (3) Administer hormones for growth promotion	NOP does not refer to fattening practices or force- feeding, but when mentioning the requirements stated on the left plus the obligation to graze, is achieving similar aims than the EU Regulation in this point
889.22 (a)(b)	(a) non-organic feed materials of plant or animal origin, or other feed materials that are listed in Section 2 of Annex V, Fermentation (by-)products from microorganisms the cells of which have been inactivated or killed: provided that: (i) they are produced or prepared without chemical solvents; and (ii) the restrictions laid down in Article 47(c) are complied with (Catastrophic circumstances) / Section 2 of Annex V: - Saccharomyces cerevisiae	§ 205.237(a) § 205.290(a)2	§ 205.237(a) The producer of an organic livestock operation must provide livestock with a total feed ration composed of agricultural products, including pasture and forage, that are organically produced and handled by operations certified to the NOP, § 205.290(a) Temporary variances from the requirements in ... 205.236 through 205.240 … may be established by the Administrator for different reasons as: (2) Damage caused by drought, wind, flood, excessive moisture, hail, tornado, earthquake, fire,	Both standards can be considered equivalent because the % and type of non-organic food permitted by the EU for cattle is minimum and both consider exceptions to the rule in case of catastrophe in similar circumstances

	- Saccharomyces carlsbergiensis (b) non-organic spices, herbs, and molasses, provided that: (i) their organic form is not available; (ii) they are produced or prepared without chemical solvents; and (iii) their use is limited to 1 % of the feed ration of a given species, calculated annually as a percentage of the dry matter of feed from agricultural origin;		or other business interruption; and	
889.22.2	Annex V Feed materials as referred to in Article 22(d), Article 24(2) and Article 25m(1) 1. FEED MATERIALS OF MINERAL ORIGIN A 2. OTHER FEED MATERIALS Fermentation (by-)products from microorganisms the cells of which have been inactivated or killed: A Saccharomyces cerevisiae Saccharomyces carlsbergiensis	§ 205.603.2	§ 205.603 (2) Trace minerals, used for enrichment or fortification when FDA approved.	included in the list of FDA, therefore agree with EU list

889.22.4	Feed additives, certain products used in animal nutrition and processing aids may be used in organic production only if they are listed in Annex VI and the restrictions laid down therein are complied with. ANNEX VI Feed additives used in animal nutrition referred to in Article 22(g), Article 24(2) and Article 25m(2) Feed additives listed in this Annex must be approved under Regulation (EC) No 1831/2003 of the European Parliament and of the Council. 1. TECHNOLOGICAL ADDITIVES (a) Preservatives 3. NUTRITIONAL ADDITIVES (a) Vitamins 3a Vitamins and provitamins — Derived from agricultural products — (If derived synthetically, only those identical to vitamins derived from agricultural products may be used for monogastric animals and aquaculture animals. — If derived synthetically, only vitamins A, D and E identical to vitamins derived from agricultural	§ 205.237.a	§ 205.237.a synthetic substances allowed under § 205.603 and non-synthetic substances not prohibited under § 205.604 may be used as feed additives and feed supplements, Provided, That, all agricultural ingredients included in the ingredients list, for such additives and supplements, shall have been produced and handled organically.	the material listed by the EU cited by EU feet within the NOP definition of non- synthetic material and with substance permitted in NOP 205.603

	products may be used for ruminants, the use is subject to prior authorisation of the Member States based on the assessment of the possibility for organic ruminants to obtain the necessary quantities of the said vitamins through their feed rations) (b) Trace elements 4. ZOOTECHNICAL ADDITIVES Enzymes and micro- organisms			

7. Disease prevention

Article	*EU Regulation*	*Article*	*NOP*	*Evaluator's comments*
889.23.1	The use of chemically synthesised allopathic veterinary medicinal products or antibiotics for preventive treatment is prohibited, without prejudice to Article 24(3).	§ 205.238.c.1	§ 205.238§ (c) The producer of an organic livestock operation must not: (2) Administer any animal drug, other than vaccinations, in the absence of illness;	

889.23.2	The use of substances to promote growth or production (including antibiotics, coccidiostatics and other artificial aids for growth promotion purposes) and the use of hormones or similar substances to control reproduction or for other purposes (e.g. induction or synchronisation of oestrus), is prohibited.	§ 205.237.b.1 § 205.238.c.3	§ 205.237(b) The producer of an organic operation must not: (1) Use animal drugs, including hormones, to promote growth; § 205.238.c The producer of an organic livestock operation must not: (3) Administer hormones for growth promotion;	NOP does no allows the use of hormones
834.14.1.c.ii	reproduction shall not be induced by treatment with hormones or similar substances, unless as a form of veterinary therapeutic treatment in case of an individual animal;	§ 205.603.17	§ 205.603.17 Oxytocin—use in postparturition therapeutic applications	NOP allows the use of hormones for veterinary therapeutic treatment
889.23.3	Where livestock is obtained from non-organic units, special measures such as screening tests or quarantine periods may apply, depending on local circumstances.			NOP does no regulate screening test or quarantine period for newly purchased animals

889.23.4	Housing, pens, equipment and utensils shall be properly cleaned and disinfected to prevent cross-infection and the build-up of disease carrying organisms. Faeces, urine and uneaten or spilt feed shall be removed as often as necessary to minimise smell and to avoid attracting insects or rodents. ... the products listed in Annex II, can be used for the elimination of insects and other pests in buildings and other installations where livestock is kept.	§ 205.238.3 § 205.239.3 and 5	§ 205.238.3 Establishment of appropriate housing, pasture conditions, and sanitation practices to minimize the occurrence and spread of diseases and parasites; § 205.239 (3) Appropriate clean, dry bedding. (5) The use of yards, feeding pads, feedlots and laneways that shall be well-drained, kept in good condition (including frequent removal of wastes),	NOP does not specify that is necessary to disinfect; NOP regulated about cleaning but no about disinfection.
889.23.4	For the purpose of Article 14(1)(f) of Regulation (EC) No 834/2007, only products listed in Annex VII may be used for cleaning and disinfection of livestock buildings installations and utensils. ANNEX VII Products for cleaning and disinfection 1. Products for cleaning and disinfection of buildings and installations for livestock production referred to in Article 23(4): — Potassium and sodium soap — Water and steam — Milk of lime — Lime — Quicklime — Sodium hypochlorite (e.g. as liquid bleach) — Caustic soda — Caustic potash —	§ 205.105.b § 205.603	§ 205.105 Allowed and prohibited substances, methods, and ingredients in organic production and handling. To be sold or labelled as “100 percent organic,” “organic,” or “made with organic (specified ingredients or food group(s)),” the product must be produced and handled without the use of: (b) Nonsynthetic substances prohibited in § 205.602 or § 205.604; § 205.603 Synthetic substances allowed for use in organic livestock production.	NOP allows all natural products for cleaning and disinfection. In the case of synthetic products, NOP is more restrictive because it does not allow the use of products like caustic soda, potassium and sodium soap, formaldehyde, etc. Permitted by the EU regulation

	Hydrogen peroxide — Natural essences of plants — Citric, peracetic acid, formic, lactic, oxalic and acetic acid — Alcohol — Nitric acid (dairy equipment) — Phosporic acid (dairy equipment) — Formaldehyde — Cleaning and disinfection products for teats and milking facilities — Sodium carbonate 2. Products for cleaning and disinfection for aquaculture animals and seaweed production referred to in Articles 6e(2), 25s(2) and 29a. 2.1. Substances for cleaning and disinfection of equipment and facilities, in the absence of aquaculture animals: — ozone — sodium chloride — sodium hypochlorite — calcium hypochlorite — lime (CaO, calcium oxide) — caustic soda — alcohol — hydrogen peroxide — organic acids (acetic acid, lactic acid, citric acid) — humic acid — peroxyacetic acids — iodophores — copper sulphate: only until 31 December 2015 — potassium permanganate — peracetic and peroctanoic acids — tea seed cake made of natural camelia seed (use restricted to shrimp production) 2.2. Limited list of substances for use in the presence of aquaculture animals: — limestone (calcium carbonate) for pH control —			

	dolomite for pH correction (use restricted to shrimp production)			
834.14.1.e.ii & 889.24.1	889:Where despite preventive measures to ensure animal health as laid down in Article 14(1)(e)(i) of Regulation (EC) No 834/ 2007 animals become sick or injured they shall be treated immediately, if necessary in isolation and in suitable housing. 834: [In addition to the general farm production rules laid down in Article 11, the following rules shall apply to livestock production: e) with regard to disease prevention and veterinary treatments:] ... ii) disease shall be treated immediately to avoid suffering to the animal; chemically synthesised allopathic veterinary medicinal products including antibiotics may be used where necessary and under strict conditions, when the use of phytotherapeutic, homeopathic and other products is	§ 205.238.b and 7	§ 205.238.b When preventive practices and veterinary biologics are inadequate to prevent sickness, a producer may administer synthetic medications: Provided, That, such medications are allowed under § 205.603. Parasiticides allowed under § 205.603 may be used on: (7) Withhold medical treatment from a sick animal in an effort to preserve its organic status.	Equivalent, there is no significant variation

	inappropriate. In particular restrictions with respect to courses of treatment and withdrawal periods shall be defined;			
889.24.2 (updated)	2. Phytotherapeutic products, trace elements and products listed in Section 1 of Annex V and in Section 3 of Annex VI *shall be used in preference to chemically-* synthesised allopathic veterinary treatment or antibiotics, provided that their therapeutic effect is effective for the species of animal, and the condition for which the treatment is intended.';	§ 205.238.a, 6 and b	§ 205.238.a The producer must establish and maintain preventive livestock health care practices, including: (6) Administration of vaccines and other veterinary biologics. (b) When preventive practices and veterinary biologics are inadequate to prevent sickness, a producer may administer synthetic medications: Provided, That, such medications are allowed under § 205.603. Parasiticides allowed under § 205.603 may be used on:	Equivalent, there is no significant variation
889.24.3	If the use of measures referred to in paragraph 1 and 2 is not effective in combating illness or injury, and if treatment is essential to avoid suffering or distress of the animal, chemically synthesised allopathic veterinary medicinal products or antibiotics may be used under the responsibility of a veterinarian.	§ 205.238.1	§ 205.238.c.1 The producer of an organic livestock operation must not: Sell, label, or represent as organic any animal or edible product derived from any animal treated with antibiotics § 205.238.b When preventive practices and veterinary biologics are inadequate to prevent sickness, a producer may administer synthetic	the NOP allows the use of antibiotic but the animal can´t be sold as organic

			medications:	
889.24.4	With the exception of vaccinations, treatments for parasites and compulsory eradication schemes where an animal or group of animals receive more than three courses of treatments with chemically-synthesised allopathic veterinary medicinal products or antibiotics within 12 months, or more than one course of treatment if their productive lifecycle is less than one year, the livestock concerned, or produce derived from them, may not be sold as organic products, and the livestock shall undergo the conversion periods laid down in Article 38(1).	§ 205.238.c.1	§ 205.238.c.1 The producer of an organic livestock operation must not: Sell, label, or represent as organic any animal or edible product derived from any animal treated with antibiotics	NOP is more restrictive because if the animal receive an antibiotic treatment it can´t be sold as organic
889.24.5	The withdrawal period between the last administration of an allopathic veterinary medicinal product to an animal under normal conditions of use, and the production of organically produced foodstuffs from such animals, is to be twice the legal withdrawal	§ 205.238.c.1	§ 205.238.c.1 The producer of an organic livestock operation must not: Sell, label, or represent as organic any animal or edible product derived from any animal treated with antibiotics	NOP is more restrictive because if the animal receive an antibiotic treatment it can´t be sold as organic

	period as referred to in Article 11 of Directive 2001/82/EC or, in a case in which this period is not specified, 48 hours.			
889.35.3	The storage of allopathic veterinary medicinal products and antibiotics is permitted on holdings provided that they have been prescribed by a veterinarian in connection with treatment as referred to in Articles 14(1)(e)(ii) or 15(1)(f)(ii) of Regulation (EC) No 834/2007, that they are stored in a supervised location and that they are entered in the livestock record as referred to in Article 76 of this Regulation....			No included in NOP standard
889.77	[Whenever veterinary medicinal products are used, the information according to article 76(e) (records for preventative and disease treatment) is to be declared to the control body before the livestock/livestock products are marketed as organically produced.] Livestock treated shall be clearly identified, individually in the case of large animals; individually, or by batch, or by hive, in the	§ 205.238.7	§ 205.238.7 .... Livestock treated with a prohibited substance must be clearly identified…	Equivalent, there is no significant variation

	case of poultry, small animals and bees.			

8. Conversion period

Article	*EU Regulation*	*Article*	*NOP*	*Evaluator's comments*
889.37.1	The conversion rules as referred to in Article 36 of this Regulation shall apply to the whole area of the production unit on which animal feed is produced.	§ 205.240.a.	§ 205.240.a. Land used for the production ....for ruminant grazing must be managed in full compliance with §§ 205.202 through 205.206.	NOP standard is more restrictive because the conversion period is 3 year (§ 205.202.b) while the EU regulation (article 36.1) is two years for animal crops and grassland
889.37.2	Notwithstanding the provisions in paragraph 1, the conversion period may be reduced to one year for pasturages and open air areas used by non-herbivore species. This period may be reduced to six months where the land concerned has not during the last year,	§ 205.202.b	§ 205.202.b Have had no prohibited substances, as listed in § 205.105, applied to it for a period of 3 years immediately preceding harvest of the crop;	NOP standard is more restrictive because the conversion period is 3 year

	received treatments with products not authorised for organic production.			
889.38.1.a	Where non-organic livestock has been brought onto a holding in accordance with Article 14(1)(a)(ii) of Regulation (EC) No 834/2007 and Article 9 and/or Article 42 of this Regulation and if livestock products are to be sold as organic products, the production rules as referred to in Articles 9, 10, 11 and 14 of Regulation (EC) No 834/2007 and in Chapter 2 of Title II and where applicable in Article 42 of this Regulation must have been applied for at least:..... a) 12 months in the case of equidae and bovines, including bubalus and bison species, for meat production, and in any case at least three quarters of their lifetime;	§ 205.236.a § 205.236.3	§ 205.236.a Livestock products that are to be sold, labeled, or represented as organic must be from livestock under continuous organic management from the last third of gestation or hatching: Except, That: § 205.236.3 Breeder stock. Livestock used as breeder stock may be brought from a nonorganic operation onto an organic operation at any time: Provided, That, if such livestock are gestating and the offspring are to be raised as organic livestock, the breeder stock must be brought onto the facility no later than the last third of gestation.	NOP standard is more restrictive regarding the conversion period for the animals

889.38.2 & 834.14.1.a.iii	889: Where non-organic animals exist on a holding at the beginning of the conversion period in accordance with Article 14 (1)(a)(iii) of Regulation (EC) No 834/2007 their products may be deemed organic if there is simultaneous conversion of the complete *production unit, including livestock, pasturage and/or any land used for animal feed*. The total combined conversion L 250/18 EN Official Journal of the European Union 18.9.2008 period for both existing animals and their offspring, pasturage and/or any land used for animal feed, may be reduced to 24 months, if the animals are mainly fed with products from the production unit. 834: [[a) with regard to the origin of the animals:] (iii) animals existing on the holding at the beginning of the conversion period and their products may be deemed organic after compliance with the conversion period referred to in Article 17(1)(c);	§ 205.236.a § 205.236.3	§ 205.236.a Livestock products that are to be sold, labeled, or represented as organic must be from livestock under continuous organic management from the last third of gestation or hatching: Except, That: § 205.236.3 Breeder stock. Livestock used as breeder stock may be brought from a nonorganic operation onto an organic operation at any time: Provided, That, if such livestock are gestating and the offspring are to be raised as organic livestock, the breeder stock must be brought onto the facility no later than the last third of gestation.	NOP standard sets separate requirements for conversion of land from requirements for organic management of animals. The conversion period for land cannot be reduced, nor can the requirements for organic livestock. The EU regulation allows reduction of both, therefore NOP standard is more restrictive

834.17.1.d	1. The following rules shall apply to a farm on which organic production is started: d) [on a holding or unit partly under organic production and partly in conversion to organic production, the operator shall keep].....the animals separate or readily separable and keep adequate records to show the separation;	§ 205.201.a.5	§ 205.201.a The producer or handler of a production or handling operation, except as exempt or excluded under § 205.101, intending to sell, label, or represent agricultural products as "100 percent organic," "organic," or "made with organic (specified ingredients or food group(s))" must develop an organic production or handling system plan .... An organic production or handling system plan must include: 5) A description of the management practices and physical barriers established to prevent commingling of organic and nonorganic products on a split operation and to prevent contact of organic production and handling operations and products with prohibited substances;	Equivalent, there is no significant variation
834.17.1.f	1. The following rules shall apply to a farm on which organic production is started: f) animals and animal products produced *during the conversion period* referred to in subparagraph (c) *shall not be marketed* with the indications referred to in Articles 23 and 24 (bio/organic...)used in the labelling and advertising of products.	§205.236.a § 205.236.3	§ 205.236.a Livestock products that are to be sold, labelled, or represented as organic must be from livestock under continuous organic management from the last third of gestation or hatching: Except, That: § 205.236.3 Breeder stock. Livestock used as breeder stock may be brought from a nonorganic operation onto an organic operation at any time: Provided, That, if such livestock are gestating and the offspring are to be raised as organic livestock,	Equivalent, there is no significant variation

			the breeder stock must be brought onto the facility no later than the last third of gestation.	
889.21.1	Up to 30 % of the feed formula of rations on average may comprise in-conversion feedingstuffs. When the in-conversion feedingstuffs come from a unit of the holding itself, this percentage may be increased to 100 %.	§ 205.237 (a)	(a) The producer of an organic livestock operation must provide livestock with a total feed ration composed of agricultural products, including pasture and forage, that are organically produced and handled by operations certified to the NOP	NOP exceeds EU requirements, feed or animals in conversion are not considered as organic
889.21.2	Up to 20 % of the total average amount of feedingstuffs fed to livestock may originate from the grazing or harvesting of permanent pastures, perennial forage parcels or protein crops, sown under organic management on lands in their first year of conversion, provided that they are part of the holding itself and have not been part of an organic production unit of that holding in the last five years. When both in- conversion feedingstuffs and feedingstuffs from parcels in their first year of conversion are being used, the total	§ 205.237 (a)	(a) The producer of an organic livestock operation must provide livestock with a total feed ration composed of agricultural products, including pasture and forage, that are organically produced and handled by operations certified to the NOP	NOP exceeds EU requirements, feed or animals in conversion are not considered as organic

	combined percentage of such feedingstuffs shall not exceed the maximum percentages fixed in paragraph 1.			
889.21.3	The figures in paragraph 1 and 2 shall be calculated annually as a percentage of the dry matter of feedingstuffs of plant origin.			NOP exceeds EU requirements
889.47.c	The competent authority may authorise on a temporary basis: (c) the use of non-organic feedingstuffs for a limited period and in relation to a specific area by individual operators, when forage production is lost or when restrictions are imposed, in particular as a result of exceptional meteorological conditions, the outbreak of infectious diseases, the contamination with toxic substances, or as a consequence of fires;	§ 205.290.1-3	§ 205.290 Temporary variances. (a) Temporary variances from the requirements in §§ 205.203 through 205.207, 205.236 through 205.240 and 205.270 through 205.272 may be established by the Administrator for the following reasons: (1) Natural disasters declared by the Secretary; (2) Damage caused by drought, wind, flood, excessive moisture, hail, tornado, earthquake, fire, or other business interruption; and (3) Practices used for the purpose of conducting research or trials of techniques, varieties, or ingredients used in organic production or handling.	Equivalent, there is no significant variation

APPENDIX 2

The Questionnaire to producers

SURVEY TO GALICIAN ORGANIC BEEF PRODUCERS

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Introduction: The Environment Department of the University of York and the Statistic Department of the Business and Administration of the University of Vigo, are studying the beef producers' sources of information and marketing strategies with respect to the sale of beef under organic certification in Galicia. Obtaining feedback from producers is vital to the review process. We would appreciate your taking the time to complete the following survey. It should take about five minutes of your time. Responses will not be identified by individual. All responses will be compiled together and analyzed as a group.

Survey to Galician organic beef producers

1. General information:

Q.1.1 Gender

M: ☐ F: ☐

Q1.2 How old are you?

☐ < 30 ☐ 30 – 50 ☐ > 50

Q2. Where do you get information about the meat market and quality standards?

Sources of information	Always	Very often	Sometimes	Rarely	Never
Surveys/market research	☐	☐	☐	☐	☐
In Internet	☐	☐	☐	☐	☐
In TV, radio, newspapers	☐	☐	☐	☐	☐
Asking to my clients	☐	☐	☐	☐	☐
Asking to other producers	☐	☐	☐	☐	☐
Asking in the cooperative	☐	☐	☐	☐	☐

Q3. Reasons for certifying the meat production as organic

Reasons	*not at all important*	*somewhat important*	*important*	*very important*	*extremely important*
Aware of the environmental impact	☐	☐	☐	☐	☐
More profitable	☐	☐	☐	☐	☐
Better market access	☐	☐	☐	☐	☐
To gain consumer trust	☐	☐	☐	☐	☐

Q4. Classification of main marketing strategies according to their importance.

Marketing strategies	*always*	*very often*	*sometimes*	*rarely*	*never*
Reduce selling prices	☐	☐	☐	☐	☐
Highlight the quality of the meat	☐	☐	☐	☐	☐
Highlight the origin of meat	☐	☐	☐	☐	☐
Highlight that the production is environmental friendly	☐	☐	☐	☐	☐
To use other quality marks	☐	☐	☐	☐	☐

Q5. What aspects of meat consumers appreciate more?

Aspects	*not at all important*	*somewhat important*	*important*	*very important*	*extremely important*
The freshness	☐	☐	☐	☐	☐
The taste	☐	☐	☐	☐	☐
The price	☐	☐	☐	☐	☐
Locally produced	☐	☐	☐	☐	☐
The appearance	☐	☐	☐	☐	☐
The brand	☐	☐	☐	☐	☐
The certification	☐	☐	☐	☐	☐
The origin	☐	☐	☐	☐	☐

Q6. Main criteria for consumers to purchase local food

Criteria	*not at all important*	*somewhat important*	*important*	*very important*	*extremely important*
The price	☐	☐	☐	☐	☐
More trust in local food	☐	☐	☐	☐	☐
The quality of the local food	☐	☐	☐	☐	☐
To support local producers	☐	☐	☐	☐	☐
To support local economies and communities	☐	☐	☐	☐	☐

Q7. Main barriers for the development

Main barriers	*not at all important*	*somewhat important*	*important*	*very important*	*extremely important*
The lack of knowledge of consumer about organic labelling	☐	☐	☐	☐	☐
A strict supermarket quality standards	☐	☐	☐	☐	☐
The increase of meat production costs	☐	☐	☐	☐	☐
The pressure of consumers for quality food	☐	☐	☐	☐	☐
The importation of cheap meat by supermakets	☐	☐	☐	☐	☐

Many thanks!

Thank you for being willing to fill out our survey and to help us understand the organic beef production in our autonomic community.

APPENDIX 3

The Questionnaire to consumers

SURVEY TO GALICIAN CONSUMERS: PERCEPTION AND CONSUMPTION OF ORGANIC FOOD

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Introduction: The Environment Department of the University of York and the Statistic Department of the Business and Administration of the University of Vigo, are studying the consumer behaviours towards organic food in Galicia. Obtaining feedback from consumers is vital to the review process. We would appreciate your taking the time to complete the following survey. It should take about five minutes of your time. Responses will not be identified by individual. All responses will be compiled together and analyzed as a group.

Survey to Galician consumers: perception and consumption of organic food.

Q1. General information:

Gender**:**

M: ☐ F: ☐

Q1.2. How old are you?

☐ 16-24 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ > 64

Q.1.3 what is your province?

Province: ☐ Lugo ☐ Coruña ☐ Pontevedra

Q1.4. What is the highest level of education you have completed?

☐ no education ☐primary school ☐ high school

☐Technical education ☐Bachelor

Q1.5. What is approximately your maximum monthly net income?

☐ <600 € ☐ 600-999€ ☐ 1000-1499€ ☐ 1550-1999 ☐ 2000-3000

☐ >3000

Q2. Where do you buy organic food mainly?

1. Neighbourhood shops ☐
2. Traditional shops ☐
3. Directly to the producer ☐
4. Supermarkets ☐
5. Specialized shops ☐
6. Street market ☐

Q3. Please select the kind of organic product(s) you purchase the most

1. Bread ☐
2. Fruit and vegetables ☐
3. Fish ☐
4. Meats ☐
5. Preserved food ☐
6. Wine ☐

Q4. What is your definition of an organic product?

Criteria	Strongly agree	Agree	Disagree	Strongly disagree	Don´t know
Natural	☐	☐	☐	☐	☐
Chemical-free	☐	☐	☐	☐	☐
No preservatives	☐	☐	☐	☐	☐
Not insecticides / pesticides	☐	☐	☐	☐	☐
Environmental friendly	☐	☐	☐	☐	☐
Good quality	☐	☐	☐	☐	☐
GMO-free	☐	☐	☐	☐	☐

Q5. What is your motivation for purchasing an organic product?

Criteria	Strongly agree	Agree	Disagree	Strongly disagree	Don´t know
The organic certification	☐	☐	☐	☐	☐
The price	☐	☐	☐	☐	☐
The country of origin	☐	☐	☐	☐	☐
The brand	☐	☐	☐	☐	☐
To support local producers	☐	☐	☐	☐	☐
The freshness	☐	☐	☐	☐	☐
Country of origin	☐	☐	☐	☐	☐

Q6. What is your confidence in the organic certification?

1. Much ☐
2. Sufficient ☐
3. Little ☐
4. Not at all ☐

Q7. What is/are your sources of information about organic foods?

Criteria	Strongly agree	Agree	Disagree	Strongly disagree	Don´t know
Regular presence in the store	☐	☐	☐	☐	☐
Newspaper, magazines	☐	☐	☐	☐	☐
Television	☐	☐	☐	☐	☐
Promotion at fairs	☐	☐	☐	☐	☐
Promotion at children's school	☐	☐	☐	☐	☐

¡Many thanks!

Thank you for being willing to fill out our survey and to help us understand your interest in the organic food in our autonomic community.

Glossary

Standard: A document approved by a recognized body that provides rules, guidelines or characteristics for products or related processes and production methods with which compliance is mandatory. It may also include the terminology, symbols, and packaging, marking or labelling requirements (UNCTAD-FAO-IFOAM 2012).

Conformity Assessment: Any activity concerned with determining directly or indirectly that relevant requirements are fulfilled (UNCTAD-FAO-IFOAM 2012).

Equivalence: The acceptance that different standards or technical regulations on the same subject fulfil common objectives (UNCTAD-FAO-IFOAM 2012).

Recognition: Arrangement (unilateral, bilateral, or multilateral) for the use or acceptance of results of conformity assessments (UNCTAD-FAO-IFOAM 2012).

Third country: Countries recognised by the European Commission as having production standards and control arrangement which are equivalent to those provided for in European Community legislation (European Commission 2007b).

Abbreviations

EC 889/2008: COMMISSION REGULATION (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control.

EC 834/2007: Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91.

NOP: National Organic Program of the United States (US).

834.17.1: Means article 17 point 1 of EU Organic Regulation EC 834/2007.

889.08.1: Means article 08 point 1 of the EU Organic Regulation EC 889/2008.

§ 205.202.b: Means article 205.202 point b ("§" means an article of the NOP).

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