

## **4 Birth of Organic Agriculture and development of an «Organic» Market**

Abstract: This chapter focuses on the development of organic farming in Europe, analysing the theories and factors that fostered its advance. Starting from the early 20th Century, the history of organic agriculture can be retraced to today. Therefore, an overview of the Community legislation of certification systems, labelling and importation regime is also given. The organic method was regulated for the first time by Council Regulation (EU) No. 2092/1991, then later abrogated by Regulation (EU) No. 834/2007. Countries are placing increasing importance on organic farming, but there is still a high economic potential yet to be fully exploited. The main obstacle is represented by the current inability of supply to fully bridge the gap with demand. Finding a way to satisfy increasing demand without missing the aim of sustainability is difficult, too. Further to this problem, regulatory intervention by the State is essential to carry out development action plans and create the conditions and give operators the tools to put those plans in place. Investments in research and development of innovative technologies are another key factor for the growth of the organic sector.

For this reason, the analysis ends with the examination of some statistical data obtained from the last IFOAM report on consumption, production and workers in the sector. Therefore, the principal causes that prevent further development and diffusion of organic are hereby examined, and some food for thought is offered, too.

### **Historical background**

Organic agriculture first appeared in the interwar period as a reaction to the initial development of industrial agriculture.

In 1913, Germany had inaugurated the first large factory for the industrial production of ammonia.

German chemists Fritz Haber and Carl Bosch fine-tuned a way to synthesize nitrogen efficiently, using the great quantity of it in the atmosphere (Reay, 2015). Alongside the production of explosives (Louchheim, 2014), synthesized nitrogen was also employed for the production of agricultural fertilisers on an industrial scale, dramatically increasing global agricultural productivity in most regions of the world (Erisman, et al., 2008).

In the meantime, the United States was experiencing the period known as the Golden Age of Agriculture (1910-1920). Both the internal demand of agricultural products and the exportation to Europe rose quickly, and, as a consequence, the prices of those goods increased (Berton, 2015). This caused a massive increase in

production that led to the conversion of American prairies into vast mechanised monocultures (Berton, 2015). The exploitation and excessive recourse to nitrogen fertilisation led to soil impoverishment and a dramatic drop in farming yields (Berton, 2015).

In this historical context – characterised by the crisis of the rising industrial farming – currents of thought were born in Europe and the United States, sharing the idea that retaining soil fertility was the essential condition for the sustainability of agricultural systems (Berton, 2015).

These different theories can be broadly summarised into three schools of thought.

The first rests on the anthroposophical theory of the Austrian philosopher, Rudolf Steiner, and it brought forth biodynamic agriculture.

The second current is also the most substantial one and includes Sir Albert Howard's 'organic method', Hans Müller's 'biological organic method', the Italian scientific tradition (with Alfonso Draghetti as its greatest advocate), and the Lemaire-Boucher Method.

The final school of thought aims to restore the natural harmony and balance of the cultivated environment and opines that, once this condition has been reached, the only external human intervention must be harvesting the crop. The natural farming philosophy of Masanobu Fukuoka and the permaculture of David Holmgren and Bruce Charles "Bill" Mollison belong to this current.

Each of these visions, which are described below, also share the desire to produce high-quality food, for men and animals, operating in tune with the natural pace of the environment, avoiding its decay and pollution, and disapprove of monoculture and intensive farming methods.

## **Evolution in Literature**

In 1924, Rudolf Steiner held a series of conferences that were later published under the name of "Scientific and spiritual impulses for the progress of agriculture" (Steiner, 1924). According to Steiner (1924), modern scientific culture and its preference for a material knowledge of reality, was losing sight of the integral knowledge that also consisted of a spiritual one. Therefore, science had lost its ability to find suitable solutions to the problems of men (Steiner, 1924).

What happens on Earth is interconnected with that which happens in the cosmos and everything is part of the same equilibrium. If men are not aware of this equilibrium and its dynamics, they cannot act harmoniously, and so effectively, on reality (Steiner, 1924). This is the basis of anthroposophy.

Steiner's teachings were collected by Ehrenfried Pfeiffer, a student and follower of Steiner, in a practical guide that paved the way for biodynamic agriculture. Biodynamic vision rests on the scrupulous observation of the innate laws of an ag-

gricultural system and the fundamental role of the farmer. Its primary aim is the preservation of soil fertility and plant health, to aid their resistance to diseases and parasites (Pfeiffer, 1938). Another fundamental aim is the continual improvement of food quality, intended as organoleptic quality, healthiness and absence of chemical substances (Pfeiffer, 1938). Pfeiffer also helped to form the Biodynamic Farming & Gardening Association. The first biodynamic associations were born all around Europe during the Thirties and Forties. In 1952, they registered the international “Demeter” trademark for certified biodynamic products with the World Intellectual Property Organization (WIPO) in Geneva.

Meanwhile, in Great Britain, many researchers dedicated themselves to organic farming practices.

Sir Albert Howard recognised the relationship between the fall of various great civilisations, such as the Romans, and the evolution of their agricultural practices (Howard, 1940). In his studies Howard underlined the importance of soil fertility and the unsuitableness of chemical fertilisers. In his publication *An Agricultural Testament*, he explained the relationship between soil quality, plant health and animal wellness. He was also the creator of the ‘Indore’ compost method (Howard, 1940).

In 1939, inspired by Sir Howard, Lady Eve Balfour conducted the Haughley Experiment, the first comparative study between conventional and natural farming methods, the results of which were included in the work, *The Living Soil*, in 1943. In the same year, the first studies were published on the link between food and human health.

During those years, Swiss politician Hans Müller also defined standards for organic-biological farming, which was diffused first in Switzerland and then later in other Germanic-speaking countries, and still remains the most widespread organic practice, currently codified in the Bioland and Bio Suisse standards. Its purposes were simultaneously social, political and economic: he especially recommended the self-sufficiency and independence of farmers and a shorter supply chain. In cooperation with Austrian doctor Hans Peter Rusch, Müller developed a test to determine the level of soil fertility and in 1946, they founded the Co-operative Association for Cultivation and Utilization and the journal *Culture and Politics* (Balfour, 1976).

Alfonso Draghetti was an agronomist and director of the Experimental Agrarian Station in Modena, a division of the Italian Ministry of Agriculture. His work “Principi di fisiologia dell’azienda agraria” (1949) (*Physiological Principles of the Farm*) originated from the precondition that redefining the role of agronomics and the agronomist was necessary (Draghetti, 1949). He studied the farm as an organisational whole, including soil, plants, livestock, fertilisers, microorganisms, machinery, people and all elements that were previously studied as individual factors by different disciplines (Draghetti, 1949).

Since 1958, Raoul Lemaire had dedicated himself to an agricultural practice that excluded all types of chemical products and that employed specifically designed tools. Lemaire’s studies led him to cooperate with Jean Boucher, a humus

scholar (Boucher, 1968). This collaboration also gave birth to the Association Française pour l'Agriculture Biologique (AFAB), with Boucher presiding until his passing in 2009, which marked the beginning of organic farming in France.

Masanobu Fukuoka was born in 1913 in a small village on Shikoku Island, South Japan, and grew up studying microbiology and phytopathology (IFOAM, 2018). Fukuoka criticised the fact that men had missed the authentic role of agriculture, which was not only to produce food, but to bring men closer to nature and lift their spirits (Fukuoka, 1987). "The Natural Way of Farming" (1987) laid out four fundamental aspects:

- No ploughing: tilling the soil destabilises it, causing it to harden and become less porous.
- No fertilising: the soil is able to preserve its fertility thanks to its natural cycles. Fertilisers lead to quickened harvest growth, but at the same time reduce plant resistance.
- No spudding: there are no weeds in nature – even unwanted plants play a fundamental role in maintaining soil fertility and the balance of the ecosystem. Planning a sowing calendar could help in monitoring unwanted plants.
- No pesticides: nature creates a stable balance independently, where drops due to insects and disease are stripped down.

Towards the end of Seventies, Bill Mollison and David Holmgren developed a method similar to Fukuoka's. The purpose of this method was to establish a permanent agriculture system that minimised sowing, soil tilling and composting (Mollison & Holmgren, 1978). In other words, it was necessary to combine each element of the natural system to optimise its performance, minimising external interventions. Even though this method requires a high employment of initial inputs, a system begun this way gradually becomes self-sufficient, even in the energetic sense (Mollison & Holmgren, 1978).

Table 4.1: Literature Review

<i>Who</i>	<i>When</i>	<i>What</i>	<i>Where</i>
Rudolf Steiner	1924	"Scientific and spiritual impulses for the progress of agriculture"	Editrice Antroposofica
Sir Albert Howard	1940	"An Agricultural Testament"	Oxford Unipress
Ehrenfried Pfeiffer	1945	"Practical Guide to the Use of the Biodynamic preparations"	Rudolf Steiner Publishing Company
Alfonso Draghetti	1949	"Principi di fisiologia"	Istituto Editoriale

		dell'azienda agraria”	Agricolo
Lemaire and Boucher	1968	Précis Scientifique et pratique de Culture biologique – Méthode Lemaire – Boucher	Agriculture et vie
Lady Eve Balfour	1976	“The Living Soil and the Haugley Experiment”	Universe Book
Bruce Charles Morrison and David Holmgren	1978	“Permaculture One: A Perennial Agriculture for Human Settlements”	Transworld Publisher
Masanobu Fukuoka	1975 1992	“The One-Straw Revolution” “The Natural Way of Farming”	Japan Publications

Source: Our reorganisation of the information in this chapter

### **The development of an «organic» market**

In the early Fifties, pioneering medical studies rose the alarm for the first time about the influence of nutrition on health. The increasing awareness of ecological issues, the social and cultural context, characterised by protest movements, social changes, the spread of new ideas thanks to new ways of communication and the diffusion of new alternative lifestyles, supported organic agriculture's success.

The organic method was first considered at an institutional level as an “alternative agriculture” around 1970, as reported, for example, by R. Boeringa (Boeringa, 1980), who wrote about establishing a National Committee for Research into Biological Methods of Agriculture in the Netherlands.

In the year of the first oil crisis, the Soil Association created the first certification brand and introduced technical standards, production guidelines and quality control in order to guarantee an actual warranty for consumers.

A short time later, the world's most important organic organisations joined the International Federation of Organic Agriculture Movements (IFOAM), which is still today the main international reference for organic agriculture. Officially founded in 1972, IFOAM is today registered in Germany as a no-profit association.

The aim of IFOAM has been, since its birth, to define the fundamentals that could be a landmark for the different bio-agricultural movements and to build an ethical-philosophical basis for the expression of stances, plans and standards to distribute among farmers (IFOAM, 2018).

Of course, these principles do not only represent the fundamentals of organic agriculture, but the contribution that this activity can make to our planet. Hence their implementation could be extended to any interaction between men and the environment (such as the management of soil, water, plants and animals, in each phase of production, conversion, distribution and consumption of goods) (TNAU Agritech, 2016).

These principles are meant to be considered together as tangible actions. In particular, IFOAM identifies four statements:

- 1) The principle of health: organic agriculture should support and advance the health of soil, plants, animals and human beings, and of our planet, of which there is one and one alone.
- 2) The principle of ecology: organic agriculture should follow existing life cycles and ecosystems, flow with, emulate and support them.
- 3) The principle of fairness: organic agriculture should be based on relationships that assure fairness with regard to the common environment and life opportunities.
- 4) The principle of care: organic agriculture should be managed with caution and responsibility, in order to safeguard the health and wellness of this generation, generations to come and the environment.

In 1982, IFOAM developed a Code containing standards for biological agriculture in national and international trade.

## **EU Legislation on Organic Production and Labeling**

Consumers' increasing interest in the organic method and environmental issues was leading to the creation of a new market that needed regulating, to guarantee fair competition conditions and make organic farmers credible and trustworthy in the eyes of consumers.

Therefore, in 1991 EEC Regulation No. 2092 was issued, which regulated an agricultural method of production for the first time (EEC, 1991). Organic agriculture was officially recognised in all fifteen European Member States and common minimum standards for those countries were established. Whilst the regulation pertained only to agriculture, it also called for the commitment to present a proposal for an organic breeding method by 1 July 1992. Despite this, zootechnical legislation only arrived in 1999 with Reg. No. 1804 (EC, 1999).

In 2007, the 1991 regulation was abrogated by Council Regulation (EC) No. 834/07 (EC, 2007), followed by Commission Regulations (EC) No. 889/08 (EC,

2008) and 1235/08 (EC, 2008), the latter two laying down detailed rules for the implementation of the former one.

Regulation (EC) No. 834/07 introduces important changes regarding certification and control, labelling and brands, use of the terms 'organic'/'biological' and importations.

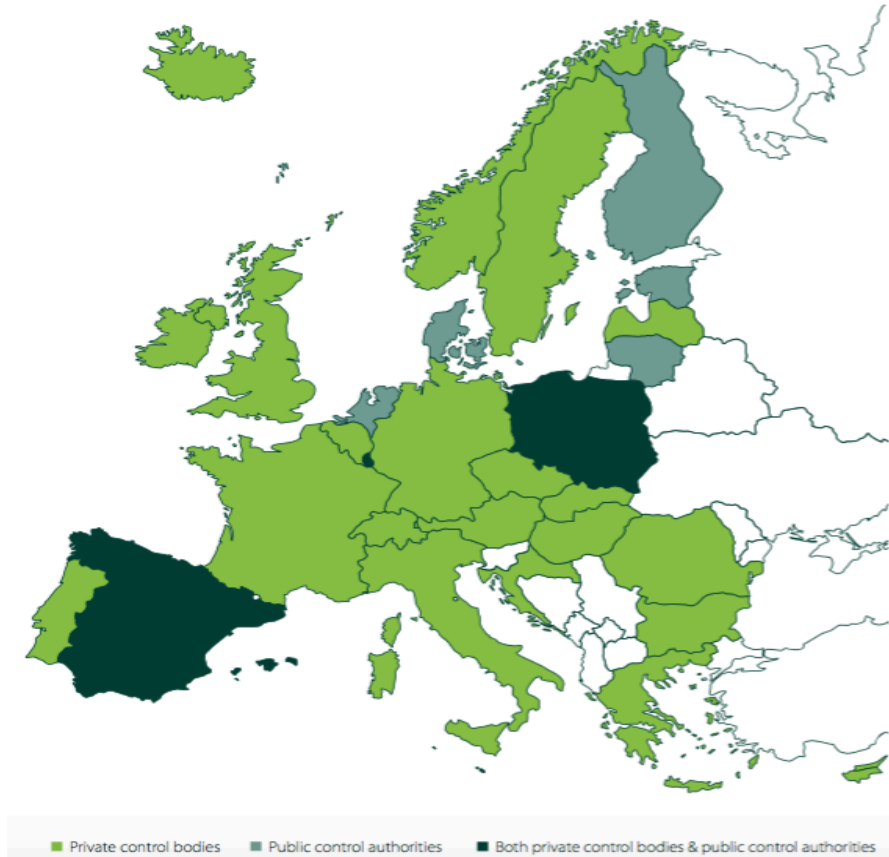
## **Certification and control in Europe**

A uniform System of Control has been adopted in the EU. First of all, conventional farmers looking to convert to the organic method must observe a two-year 'conversion' period before being able to sell their products as 'organic'. Producers meaning to continue with both cultivations will be obliged to clearly separate each phase of the two production processes. Once the conversion is final, any operator can undergo annual inspections by control organisations; therefore, operators must ensure legislative requirements are met. Inspections may involve checking support material for purchases, sales and sanitary treatment of livestock, analysing soil samples, checking the conditions of the breeding farm, fields, greenhouses, and so on.

Each Member State set up an inspection system and designated public control authorities or private control bodies, or both, to control and certify organic products, as shown in the following figure (Figure 4.1).

Figure 4.1

### **Organic certification in Europe**



Source: DG Agriculture and Rural Development, 2014 and IFOAM EU Survey 2015

Certification may be removed from producers and secondary operators who do not satisfy all the requirements.

Commission Regulation (EC) No. 426/11 introduced the obligation for every Member State to make documentary evidence available regarding organic operators, including publication on the Internet, since 1 January 2013<sup>1</sup>.

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<sup>1</sup> Reg. (EU) No. 426/11 of the Commission of 2 May 2011 amending Reg. (EC) No. 889/08 laying down detailed rules for the application of Reg. (EC) No. 834/07 with regard to information about operators subject to the control system and publication on the Internet from 1 January 2013.



## **Labeling, brand and use of the term «organic»**

According to the 2nd article of Council Regulation (EC) No. 834/07:

“‘labelling’ means any terms, words, particulars, trademarks, brand name, pictorial matter or symbol relating to and placed on any packaging, document, notice, label, board, ring or collar accompanying or referring to a product” (EC, 2007).

The organic brand and the labelling system have been created with the purpose of reassuring consumers that the products they purchase have been created following European Regulation in minute detail.

Council Regulation (EEC) No. 2092/91, Art. 5 listed three different labelling possibilities:

- “Certified Organic Product” or similar wording;
- “X% of the agricultural ingredients were produced in accordance with the rules of organic production”, and
- during a transitional period expiring on 31 December 1997, the labelling and advertising material of a product may refer to organic production methods in the list of ingredients, if at least 50% of its ingredients of agricultural origin satisfy the requirements (EEC, 1991).

The 2007 reform maintained the former category only. Since then, products packaged and labelled with the old label system before 1 July 2010 could be sold while stocks lasted. Packaging and labelling in compliance with the old regulation could be used until 1 July 2012, as long as the products were compliant with Reg. No. 834/07.

The indications put on products about organic production methods must respect the provisions of Regulation (EC) No. 834/07 and No. 889/08 (EC, 2008) and must be approved by legitimate control authorities.

The following products may contain references to organic methods on their label:

- products obtained according to European regulation or imported from third countries within the equivalence regime;
- products whose ingredients not deriving from organic agriculture, such as adjuvants, additives, artificial flavours and salt, are amongst those specified in the Positive List of Reg. No. 889/08;
- products whose ingredients follow a production cycle that is totally GMO free;
- products whose organic ingredients are not blended with a similar conventional substance, and
- products or ingredients that have not been treated with technological adjuvants other than those allowed.

To increase consumer certainty, the law states that any products labelled ‘organic’ must bear the name or business name of the last operator that handled the product.

Furthermore, other compulsory indications – as specified in Reg. (EC) No. 834/07, art. 24 – include:

- the code number of the control authority or body that checked the most recent operator;
- the Community logo, alongside one of the following forms:
  - ‘EU Agriculture’, when the agricultural raw material has been farmed in Europe;
  - ‘non-EU Agriculture’, when the agricultural raw material has been farmed outside of Europe;
  - ‘EU/non-EU Agriculture’, when part of the agricultural raw material has been farmed in Europe and the rest in a third country.

Commission Regulation (EC) No. 271/10 defined rules for the use of the new logo and amended some labelling rules (EC, 2010).

The new logo must have the following features:

- at least 9 mm high
- 13.5 mm wide
- this said, the ratio of height to width shall be fixed at 1:1.5
- the dimension can be reduced for very small packaging
- the landmark colour is No. 376 on the Pantone scale
- can be printed in black and white when colour is not possible.

The European logo guarantees that:

- the requirement of at least 95 % by weight of organic components is met;
- the inspection system has confirmed compliance of the products;
- the products are sold directly by the producer, or processor, to the end consumer in sealed packaging, or placed on the market as pre-packaged food-stuffs;
- the labelling shows the name and/or business name of the producer, processor or supplier/seller and the name or code number of the inspection authority.

Moreover, Art. 10 of Council Regulation (EEC) No. 2092/91 specified that “no claim may be made on the label or advertising material that suggests to the purchaser that the indication shown in Annex V constitutes a guarantee of superior organoleptic, nutritional or salubrious quality” (EEC, 1991). In Regulation (EEC) No. 834/07, this provision is not present. Throughout the European Community, organic products can be spoken about as quality products.

Again in regard to the use of the term ‘organic’ (or other terms listed in the Annex or their derivatives, such as ‘bio’ or ‘eco’) the Regulation is very strict, to avoid the risk of confusion and potential abuse of consumers. Any terms, includ-

ing those used in trademarks, or practices used in labelling or advertising that are liable to mislead the consumer or user by suggesting that a product or its ingredients satisfy the requirements set out under this Regulation cannot be used. The use of the term 'organic' in labels or transport documents renders the producer or secondary operator answerable to the law for the product's compliance.

## **Importation regime of organic products**

Rules about importation from third countries are detailed further on in Regulation (EC) No. 1235/08.

Basic regulation distinguishes between compliant products and products providing equivalent guarantees as provided in Articles 32 and 33 of the above Regulation (EC, 2008).

With «compliant products», the legislation means products in compliance with the instructions of Titles II (Objectives and principles for organic production), III (Production rules) and IV (Labelling) of Regulation (EC) No. 834/07 (EC, 2008). The afore-mentioned products will be subject to certification by Control Authorities or Bodies recognised by EU Commission, which directly monitors these entities (EC, 2008). The list of approved bodies is found in Annex I and subsequent amendments and integrations.

With 'products providing equivalent guarantees', the legislation means those from countries with their own legislation and control system, in compliance with Titles III and IV of Regulation (EC) No. 834/2007. The afore-mentioned products will be provided with an Inspection Certificate attesting that they satisfy suitability requirements. Countries recognised as 'equivalent' are listed in Annex III and subsequent amendments and integrations.

For particular cases not mentioned above, Regulation (EC) No. 1235/2008 (Article 19) also set out, for a temporary period ending 1 July 2014, the chance for Member States to release authorisation with the duration of one calendar year.

Article 13 points out the requirements and purpose of the Certificate of Inspection. The validity of this certificate depends on its compliance with the models described in Annex V (for the import of products from organic production into the European Community) or Annex VI (Model of the extract of Certificate of Inspection, referred to in Article 14, "Special customs procedures") (EC, 2008).

## **Comparison with other international regimes**

In the United States, organic products are regulated by a specific Federal Law, best known as the NOP (National Organic Program), in effect as of 21 February 2001 (USDA, 2001).

In February 2012, the USA and the EU signed an agreement with which the two systems recognise one another as equivalent. Thus, products identified as organic in one country can be marketed with the organic logo provided in the other, albeit with a few restrictions (USDA, 2012).

The European Union and Canada signed an equivalence agreement in June 2011. The Canadian Food Inspection Agency adopted the Organic Products Regulations in June 2009 (ACT, 2009). At the same time, it introduced the Canada Organic (*Biologique Canada*) label for certified products (Minister of Agriculture and Agrifood Canada, 2009).

Groups such as the Canadian Organic Growers (founded in the Seventies) have been decisive in formulating the organic standards in use today and pushed the government for years to implement them across the industry.

On 7 April 2016, an update to the agreement took effect.

Since the 1960s in Japan, closed markets of organic products have existed, which still play a main role on the market. Alongside those movements are networks of grassroots organic foods, distributors, retailers and consumer cooperatives (Moen, 2000). The largest is the Japan Consumers' Cooperative Union (Seiko), established in 1951 (Moen, 2000).

In 2002, JAS (Japan Agricultural Standards) Regulation set up a certification system, entailing that certification must be attributable to a Japanese body (RCO, Registered Certification Organisation) or a foreign authority (RFCO, Registered Foreign Certification Organisation) registered by the Agricultural Ministry of Japan (ICEA, 2002). ICEA was approved for the first time on 7 July 2003.

The JAS label must be put on a product's label, next to the foreign logo, as a sign of a quality brand.

Brazilian national norm No. 46 defining the Technical Regulation for organic systems used for animals and plants, took effect on 1 January 2011.

## **European organic production and market trends**

During the 10th European Organic Congress of IFOAM EU, which took place in Amsterdam in April 2016, IFOAM presented its report "Organic in Europe: Prospects and Developments 2016" (IFOAM, 2016). The report analysed the critical aspects of organic, the obstacles to further development and solutions for moving organic forward, and gave up-to-date data about production and sales. Unfortunately, not all countries provide data on their domestic markets on a regular basis, and for many countries new data is missing (IFOAM, 2016).

In 2014, organic retail sales reached almost 24 billion euros in the European Union (EU-28) and overtook 26 billion euros in Europe, proving itself the second largest single market for organic products after the United States (IFOAM, 2016).

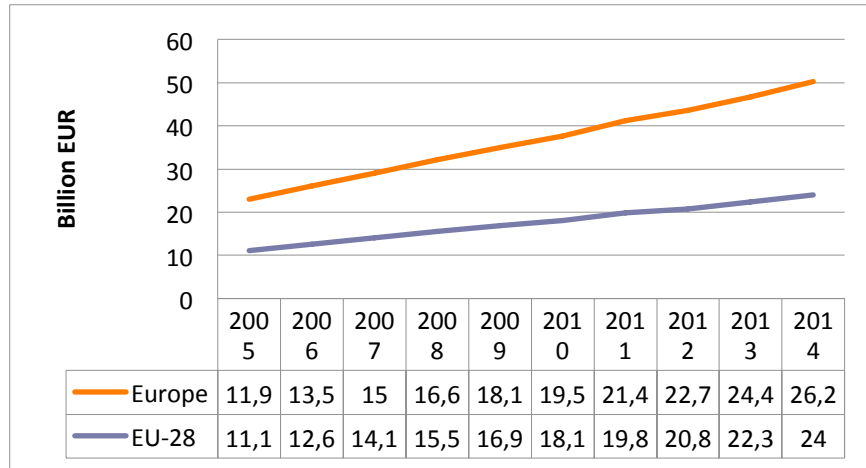
Germany has the largest market in Europe in terms of sales volume (about 7,910 million euros), followed by France, UK, Italy, Switzerland and Sweden (IFOAM, 2016). Nevertheless, Denmark is the country with the higher market share of organic products (about 7.6%), followed by Switzerland, whilst Germany and Italy only rank 5th and 10th respectively (IFOAM, 2016). The following table and figures show how organic retail sales have been growing since 2005 and how these sales are attributed, both at community and global level.

**Table 4.2: Organic retail and per capita consumption trends in Europe, 2014**

<b>Country Group</b>	<b>Retail sales (million EUR)</b>	<b>Per capita consumption (EUR)</b>	<b>Growth 2013-2014</b>
<b>EU-28</b>	<b>23,963</b>	<b>47.4</b>	<b>7.4%</b>
<b>Europe</b>	<b>26,203</b>	<b>35.5</b>	<b>7.6%</b>
<b>Global</b>	<b>62,631</b>	<b>8.7</b>	

Source: Information organised by the author on the basis of the FIBL-AMI Survey 2016, based on national data sources.

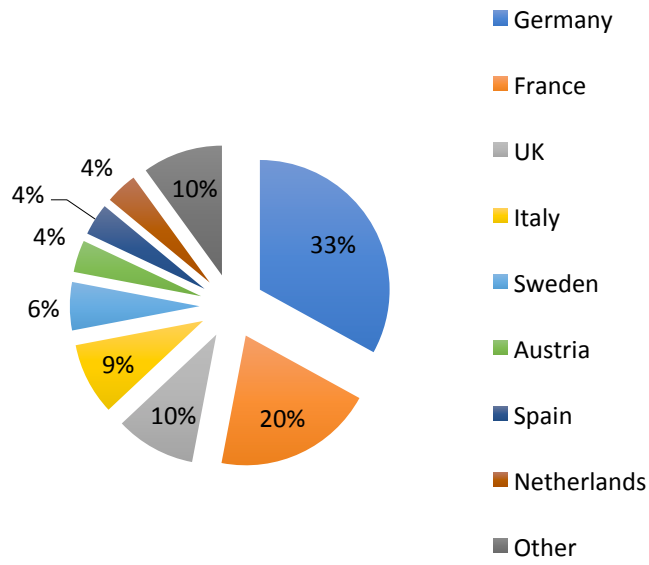
**Figure 4.2: Growth of organic retail sales in Europe 2005-2014**



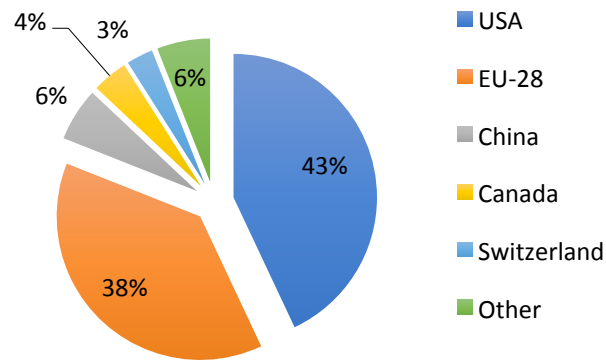
Source: Information organised by the author on the basis of the FIBL-AMI Survey 2016, based on national data sources.

It is evident that sales have increased constantly through the past decade in spite of the economic crisis, which particularly affected the food market.

**Figure 4.3: Distribution of organic retail sales in EU-28**



Source: FIBL-AMI Survey 2016, based on National data sources.

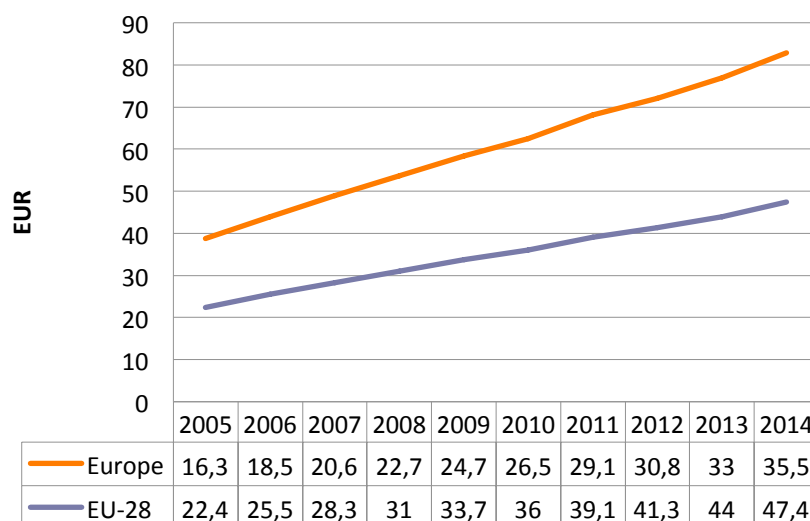
**Figure 4: Distribution of global organic retail sales**

Source: FIBL-AMI Survey 2016, based on National data sources.

In Figure 4.5 we notice that per capita consumption has doubled in the last ten years. Moreover, it must be pointed out that some Countries spent, on average, above and beyond this amount: the main ones include Switzerland (€221), Luxembourg (€164), Denmark (€162) and Sweden (€145). Even when taking the different costs of living into account, these sums are more than considerable.



**Figure 4.5: Growth of per capita consumption in Europe, 2005-2014**



Source: FIBL-AMI surveys 2006-2016 and OrganicDataNetwork surveys 2013-2015.

The number of producers who have embraced the organic method has seen a staggering increase in previous years, especially since the first EU piece of legislation. In any case, more recently this increase is slowing down and has even shown signs of a negative trend in countries traditionally connected to the organic way of farming, such as England (IFOAM, 2016). The number of secondary operators, processors and importers, on the other hand, is rising (Table 4.3). As the organic market revealed itself to be a big business opportunity, many new operators stepped into this business, particularly importers and retailers. If organic production in the EU does not increase at the same speed as demand does, there will be a risk that the demand will be met by imports and that EU producers will not benefit from this opportunity.

Italy has the largest number of producers and processors; the country with the most importers is Germany.