Justus Liebig University Gießen

Faculty 09: Agricultural Sciences, Nutritional Sciences and Environmental Management

Institute of Agronomy and Plant Breeding II
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Master thesis

The organic sector in Germany, Austria and the Czech Republic: Comparison of economic aspects and potential development

Supervisor: Prof. Dr. Günter Leithold
Co-Supervisor: Soňa Valtýniová, Ph.D.

Student: Franka Schmidt

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List of abbreviations

AMA	Agrarmarkt Austria Marketing GmbH
AMI	Agrarmarkt Informations-Gesellschaft mbH [Agricultural Market Information Company]
BLE	Bundesanstalt für Landwirtschaft und Ernährung [Federal Agency for Agriculture and Nutrition of the Federal Republic of Germany]
BMELV	Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz [Federal Ministry of Nutrition, Agriculture and Consumer Protection of the Federal Republic of Germany]
BMLFUW	Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft [Federal Ministry of Agriculture, Forestry, Environment and Water Management of the Republic of Austria]
BÖLN	Bundesprogramm Ökologischer Landbau und andere Formen nachhaltiger Landwirtschaft [Federal scheme for organic farming and other forms of sustainable agriculture]
BÖLW	Bund Ökologische Lebensmittelwirtschaft [Union of organic food industry]
CAP	Common Agricultural Policy
EC	European Commission
EU	European Union
FiBL	Forschungsinstitut für Biologischen Landbau [Research Institute of Organic Agriculture]
IFOAM	International Federation of Organic Agriculture Movements
MZe	Ministerstvo zemědělství [Ministry of Agriculture of the Czech Republic]
NAO	National Audit Office
ÖLG	Öko-Landbaugesetz [Act on organic agriculture]
ÖPUL	Österreichisches Programm zur Förderung einer umweltgerechten, extensiven und den natürlichen Lebensraum schützenden Landwirtschaft [Austrian Agri-Environmental Programme]
USDA	United States Department of Agriculture

Summary

This paper analyses the current situation as well as the previous and potential development of the organic sectors in Germany, Austria and the Czech Republic. Concerning domestic productions and consumptions, permanent grassland areas have been most prominent, and consumers prefer fresh products in organic quality. In all countries, a mix of legal, financial and communicative policy instruments is currently being applied to stimulate both the organic markets' supply and demand side. On the basis of this support, the sector has established and achieved noticeable market shares in Germany and especially in Austria so that these countries highly depend on imports to cover their domestic demand for organic foods nowadays. However, the organic sector's development in the Czech Republic has slowed down due to both the general economic crisis and lacking stimulation of consumption, which is why particularly demand boosting political instruments should be intensified here. For the future support of organic farming, national policies should continuously be improved and targeted at consumers' interests. Moreover, stronger international cooperation, especially on the political level, could contribute to a promising development of the European organic sector and help to put successful scientific work into practice.

1 Introduction

‘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. The organic production method thus plays a dual societal role, where it on the one hand provides for a specific market responding to a consumer demand for organic products, and on the other hand delivers public goods contributing to the protection of the environment and animal welfare, as well as to rural development.’ (§ (1) Council Regulation (EC) No. 834/2007)

Within Europe, the organic sector has developed rapidly during the last decade, and it is expected to grow further (EC, 2010a; Willer and Kilcher, 2012). In addition, the European Economic Area as well as the political integration of the European states offer a broad range of possibilities to network and cooperate, for instance on the information and trade level, and allow to draw conclusions about overall European trends. However, even though the European Union provides an organisational frame for the agricultural development, in particular the development of organic farming, the arrangement of concrete policy means to support the organic sector is left to each country’s own device. Moreover, statistical data describing production, trade and consumption of goods in organic quality often lack (EC, 2010a; Willer, 2012). As a consequence, further scientific work which deals both with the economic performance of organic enterprises and the overall organic market development is needed to contribute to the societal relevance of organic production.

This paper presents the current development of the organic sectors in Germany, Austria and the Czech Republic describing the economic characteristics of production and market in each country as well as the applied policy means. Also, it takes a look on incentives that have promoted production and consumption of organic products in these states, and which challenges for the organic sectors’ ongoing development are prevalent. Further, the paper aims to show potential development possibilities of the organic sector throughout Europe, and to identify successful policy strategies for the promotion of organic agriculture and market development. Finally, it raises the question whether an enhanced cooperation between the European states is suitable to continue the establishment and enlargement of the organic business.

2 Methodology

This paper on the organic sectors in Germany, Austria and the Czech Republic has been produced on a broad internet-based literature research, in which scientific papers, statistic databases as well as institutional publications were used. The following web sites http://scholar.google.com/, http://www.orgprints.org/, http://www.fibl.org/ and http://www.agriculturejournals.cz/ were used in order to find suitable literature related to the topic.

In the beginning, the European organic sector, including information on production, market and policy instruments, is described briefly to see the work about the individual countries against the background of the overall European development. Further, an overview and explanation of the generally applied policy instruments towards the organic sector is given there. Analogically to this chapter 3.1, production, market and policy instruments in Germany, Austria and the Czech Republic are presented in the following chapters 3.2 to 3.4. To characterise the economic aspects of the organic sectors in the focused countries, web sites of national governmental and private institutions, which are listed at the end of this paper, like ministries of agriculture and unions of interest groups within the organic business, were used as sources of statistics. Besides, these web pages have offered access to national political activities on organic farming and further background information.

In the discussion of this paper, emphasis is put on the development of the organic sector in the Czech Republic since the analysis has shown that organic market expansion in this country has recently achieved the smallest progress compared to Germany and Austria. In addition to literature work, a stakeholder within the Czech organic sector, Tomáš Václavík, was therefore interviewed personally to get a detailed insight into current facts. Apart from the national level, policy instruments are discussed later in general since similar policy strategies have been applied in all three countries. In addition, a short characterisation of the Swiss organic sector is included to point out possible alternatives to the widespread development strategies in the European Union. Finally, the importance of research and provision of statistical data is underlined because the work with the international database http://epp.eurostat.ec.europa.eu/ showed that the statistical information on the organic sector provided there have been highly incomplete.

3 Results

3.1 The organic sector in Europe

3.1.1 Production

In 2010, an area of 10,002,087 ha was used for organic agriculture, which amounted to 2.06 % of the total European agricultural area. In the countries of the EU, the share was 5.1 % with an area of 9,016,097 ha under organic practices in the same year. From 2009 to 2010, the sector's average growth rate throughout Europe was about 9 %, and the organic area has more than doubled since 2000. Trends for 2011 indicate that the increasing development of the organic sector was going to continue (Willer, 2012).

Permanent grassland plays an important role in organic agriculture. In 2010, it accounted for 45 % of the total organic agricultural area in Europe (Willer, 2012). As the conversion of extensively used grazing areas towards permanent organic grassland just necessitates comparatively slight changes and investments, this method of production is much more prominent in organic farming. According to this, the average holding size of organic farms is about twice the size of conventional holdings. Therefore, organic farming has its highest production shares in alpine areas with focus on extensive grazing in Liechtenstein, Austria and Switzerland (Stolze and Lampkin, 2009; Willer, 2012).

The land use for organic arable crops in Europe amounted to 41 % in 2010. Therein, cereals were the most grown crops and accounted to 19 % of Europe's total area under organic production. The second key crop within this group was green fodder from arable land. Permanent crops contributed with 10 % to the overall organic production in 2010. Here, olives, grapes and nuts represented the majority of this sector (Willer, 2012).

With an area of almost 1.5 million hectares in 2010, Spain had most organic agricultural land, followed by Italy, which was the European country with the largest number of organic producers. The share of organic agricultural land was highest in Liechtenstein (27.3 %) and Austria (19.7 %). In Sweden, Estonia, Switzerland and the Czech Republic, the area under organic production made up more than 10 % of the countries' total agricultural land (Willer, 2012).

3.1.2 Market

The total value of the European organic market amounted to approximately 19.6 billion EUR in 2010, wherein the EU market accounted to 18.1 billion EUR (Schaack et al., 2012). In compari-

son, the market volume in 2004 had been 10.8 billion EUR and 10.0 billion EUR in Europe and the EU, respectively. The highest growth rates were reported for, amongst others, Belgium, Austria, Italy and Sweden, whereas the average growth in Europe between 2009 and 2010 was estimated to be approximately 8 %. However, the markets of some European countries are still affected by the financial crisis, which is why market values stagnate or decline, e.g., in Ireland, the United Kingdom and Norway (Schaack et al., 2011a; Schaack et al., 2012).

With a volume of about 6 billion EUR, Germany had the largest market for organic products in 2010. Further large markets could be found in France, the United Kingdom and Italy. Market shares, defined as a percentage of total retail sales, were highest in Denmark (7.2 %), Austria and Switzerland. The highest annual per-capita consumption was reported in Switzerland (152.50 EUR), followed by Denmark, Luxembourg and Austria (Schaack et al., 2012).

For 2011, the markets were assumed to continue growing. Though, supply was supposed to be the limiting factor for market growth again since prices had substantially risen after two low harvests for many crops (Schaack et al., 2012)

3.1.3 Policy instruments

As stated in § (1) Council Regulation (EC) No. 834/2007, there is a dual approach for organic farming and food aiming to address both market development and public good issues, which needs to be taken into consideration when planning appropriate policy mixes. Besides, the concept of organic agriculture has been developed within the private sector and can therefore not be altered at discretion by policy makers (Stolze and Lampkin, 2009). As a consequence, organic farming policy instruments are applied at different levels, and can be divided into legal, financial, communicative and integrative approaches (see Table 1).

Common Agricultural Policy

The Common Agricultural Policy (CAP) of the EU is a system of subsidies and programmes that supports agriculture and rural development in the EU. Most notably, organic agriculture is an important aspect within the rural development policy of the CAP as its benefits towards the production of environmentally friendly goods are evident. Additionally, organic farmers can receive direct payments and price supports (EC, 2004). In 2008, the EU spent 55.115 billion EUR on agriculture and natural resources, what made up 47.3 % of the EU's total expenditure (NAO, 2010). The CAP has been under substantial criticism and is going to be reformed by 2013 leading towards a renewed agricultural policy for the period 2014 to 2020 (EC, 2012).

Table 1: Organic farming policy instruments used in Europe (Sanders, 2011; Stolze and Lampkin, 2009)

Policy instrument	Supply side	Demand side
Legal instruments regulations	• Council Regulation (EC) No. 834/2007 on organic production	• Council Regulation (EC) No. 834/2007 on organic production
Financial instruments	• Area payments: conversion and/or maintenance • Inspection cost support • Investment grants • Animal welfare improvement programme	• Support for marketing initiatives • Public procurements projects • Investment grants for processing and distribution • Support for marketing of quality food products • Support of new sales structure • Feasibility studies • Market analyses and inventories • Investment grants for consumer cooperatives
Communicative instruments	• Advice and technical assistance • Vocational training and educational programmes • Research • Investment grants for demonstration projects • Support for capacity building and institutional structures • Financial reporting	• Information and promotion campaign • Public education • EU/state logo • Research • Support for fairs, exhibitions and organic events • Production and market statistics

Legal instruments

The first legal definition of organic farming was given in the Council Regulation (EEC) No. 2092/91 of 24 June 1991 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs. Although some European governments, like in Denmark, Austria and Switzerland, had introduced initiatives to support organic farming in their countries in previous years, the law provided opportunities to enhance organic farming in the context of rural development programmes (Stolze and Lampkin, 2009). Council Regulation (EEC) No. 2092/91 was repealed by Council Regulation (EC) No. 834/2007 of 28 June 2007 on organic production and labelling of organic products, which legally defines basic organic principles today. Further, Commission Regulation (EC) No. 889/2008 provides detailed rules for the implementation of Commission Regulation (EC) No. 834/2007 with regard to organic production, labelling and control.

Financial instruments

The organic sector is specifically supported at the EU level with so-called agri-environment payments. According to Council Regulation (EC) No. 1698/2005, the member states are empow-

ered by the European Commission (EC) to give financial assistance to farming methods which protect and improve the environment and the countryside (EC, 2010). Thereby, ceilings for agri-environment payments are fixed and effective not only for organic farming. They include EU support and national co-financing and amount to annual spendings of 600 EUR/ha for annual crops, 900 EUR/ha for permanent crops and 450 EUR/ha for other uses of land like animal breeding (EC, 2010). However, the real financial support highly varies between the different EU countries, between their national regions, and depending on whether the agricultural area is under conversion or continuing organic (EC, 2010; Stolze and Lampkin, 2009). Furthermore, the share of organic area benefiting from agri-environment payments is strongly diversified comparing the member states. Besides agri-environmental payments, the organic sector can additionally profit from financial instruments of the CAP, namely direct payments, less favoured area support, and rural development measures, amongst others, which address the whole agricultural sector. In conclusion, the financial support of organic agriculture amongst the EU member states shows a high heterogeneity, which consequently is one reason for the different development dynamics of the sector (EC, 2010).

Communicative instruments

Communicative policy instruments address stakeholders on the supply and the demand side to promote their activities towards organic farming and consumption of organic products by information and interactive means. On the supply side, advice and technical assistance as well as vocational training and education programmes are used to back organic farmers. Moreover, investment grants for demonstration projects and support for capacity building and institutional structures are available in the majority of EU member states. Additionally, the EC and the member states themselves finance research projects which both address producers and consumers of organic products (Stolze and Lampkin, 2009). On the demand side, information and promotion campaigns have been introduced in several countries by the national governments, as well as the EC, to illustrate the relevance of organic agriculture and to educate the public. Further, the use of the EU logo for organic products (see annex) has become obligatory, and the launch of national labels is a popular identification mark of organic foods. Finally, production and market statistics should demonstrate the sector's situation (Stolze and Lampkin, 2009).

EU Action Plan

In 2004, the EC announced the European Action Plan for Organic Food and Farming (EC, 2004) giving a guideline for the further promotion of the organic sector. Therein, three core fields of

activity are outlined which are considered to be most important for achieving a stable market development. Firstly, 'the information-led development of the organic food market' paying special attention towards increasing consumer information to stimulate the market's demand side, and improved networking and information exchange. Secondly, 'making public support for organic farming more effective' recommending the member states to make up national action plans and thereby to endorse organic farming as a means for rural development as well as to promote research. Thirdly, 'improving and reinforcing of the Community's organic farming standards, import and inspection requirements', what on the one hand has already led to the realisation of Commission Regulation (EC) No. 834/2007, but on the other hand requires further implementation and establishment of given standards, efficiency and transparency (EC, 2004). Action plans are integrative approaches expanding from area support as the traditional organic farming policy strategy towards measures of demand orientation, communication and capacity building, and have been introduced in 26 European countries and regions (Stolze and Lampkin, 2009; Willer, 2012).

3.2 The organic sector in Germany

In absolute figures, Germany possesses the biggest market of organic products in Europe. Its domestic organic production has continuously been rising, and therein the growing of arable crops has played an important role. However, the population's demand exceeds the domestic production in various product categories, which is why imports have expanded and will further gain importance.

3.2.1 Production

In 2010, the organically cultivated area in Germany was 990,702 ha, which made up 5.9 % of the total utilized agricultural area (see Fig. 3). This land was managed by 21,942 farmers, who were 7.3 % of all German farmers. The proportion of organic production has been continuously rising during the last decades. In comparison, in 1995, the organic area was 309,487 ha (1.8 %), and was cultivated by 6,642 farmers (1.1 %) (BMELV, 2012a).

The major part of the organic agricultural land in Germany, about 515,000 ha, was used as permanent grassland in 2010, which made up a share of 52 % (see Fig. 1). In the same year, the organic beef production amounted to 3.4 % of the total beef production, which were 39.500 t. The

production of organic milk has been a continuously growing sector, and increased by 9 % in 2010. Hence, the number of cows also grew by 10 % so that 3.2 % of all cows in Germany were bred under organic methods. However, since the lactation of conventional milk cows is higher due to very intensive feeding, the share of organic milk of the total milk production was 2 %. Besides, even though the production of sheep and goat meat is still a sector in a niche, organic agriculture could achieve its highest proportion in this market segment with a share of 9.6 % of the total national production. Within other sectors of animal production, organic farming gained highest share in the production of eggs. Here, the number of laying hens increased to 2,300,000 animals in 2010. So, 621,000,000 eggs could be produced, which were 6.4 % of the total number of eggs in Germany. Concerning the production of chicken and pork, organic proportions in 2010 were 0.9 % and 0.4 %, respectively (AMI, 2012a).

Arable land has a high priority in Germany's organic farming sector, which was reflected by its proportion of 44 % of the total organic land in 2010 (see Fig. 1). Thus, arable land amounted to an area of about 435,000 ha. Arable crops have permanently been gaining importance within the organic agricultural sector since their growth rates have been slightly higher in comparison to permanent grassland areas in the last years. Within arable land, the vast majority of the area is used for growing cereals and fodder plants. The latter were produced on 157,000 ha in 2010, which made up a growth by 3 % compared to the previous year, and represented 6 % of the country's total area for fodder plants. Nevertheless, the significance of organic cereal production is evident. In 2010, organic cereals were grown on 207,000 ha, which made up 3.1 % of the total German cereal production. Because of a very good harvest in 2009, which was followed by low prices, the cereal production was declined in 2010. With a decrease by 10 % to 57,000 ha, rye areas were especially affected by this circumstance. In contrast, the organic wheat area further increased by 8 % to 54,000 ha. Besides, organic legumes were grown on 27,000 ha in 2010, which was more than a quarter of Germany's total production. What is more, the areas where organic vegetables were grown have also increased to 12,000 ha, which amounted to 10 % of the overall vegetable production. Here, organic carrots are the particularly dominant crop. Also, organic potatoes made up 8,200 ha, which is a bit less than in 2009 (AMI, 2012a).

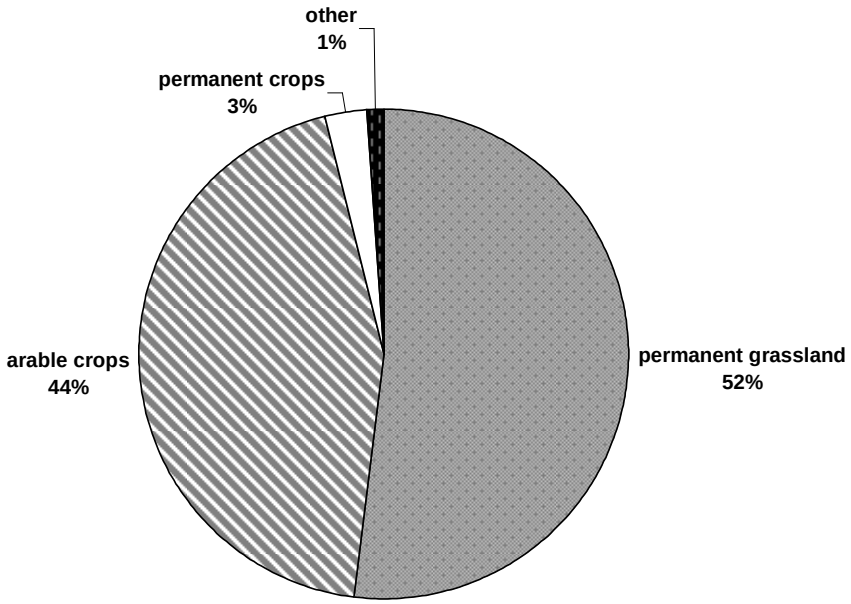

Fig. 1: Use of organic agricultural land in Germany 2010 (AMI, 2012a)

Further, an area of about 28,100 ha was cultivated with organic orchards and vineyards in 2010 (see Fig. 1). Here, especially apple-growing had been expanded the last years, so that in 2010 almost 10 % of the apples harvested in Germany were organic. In addition, organic wine growing is further gaining importance since the area of organic vineyards has increased up to 5,200 ha, which were 5.3 % of the total grape production (AMI, 2012a).

From a regional point of view, the spreading of organic farms highly differs between regions in Germany. In 2010, the largest areas under organic management could be found in the federal states Brandenburg and Mecklenburg-West Pomerania in Germany's northeast as well as in Bavaria and Baden-Württemberg in the south. Further, the organic share of the federal states' total agricultural area was above the national average of 5.9 % in Hesse and Saarland, too (BMELV, 2012c). Overall, the average organic farm size was 45.2 ha in 2010, which is similar to the farm sizes of previous years (BMELV, 2012a).

More than half of the German organic farmers are organised in organic farmers' associations. Of these organisations, the oldest one 'demeter' was founded in the 1920s. Nowadays, the association 'Bioland' has the most members, and several others have established within the domestic organic sector. The criteria towards organic production methods set by these associations are

often stricter than the requirements of Council Regulation (EC) No. 834/2007. However, they have played an important role in initiating the development of the organic sector in Germany. In 2002, farmers' associations, processors and traders founded the 'Bund Ökologische Lebensmittelwirtschaft' (BÖLW), an umbrella organisation for the German organic sector (BMELV, 2012a; BÖLW, 2012).

In 2011, the area under organic agriculture grew by 2.3 % to 1,013,540 ha, and hence made up 6.1 % of the total agricultural area in Germany (see Fig. 3). With 4.8 %, though, the growth rate in the number of organic enterprises was higher, so that there were 23,003 farmers in the same year. Accordingly, the domestic organic production sector continued growing, but on a lower level than in the previous years (BÖLW, 2012).

3.2.2 Market

With a turnover volume of 6,020,000,000 EUR in 2010, Germany's organic market absolutely was the biggest in Europe, and made up 31 % of all organic food sales on the continent. Thereby, the per-capita spendings amounted to 73.60 EUR, so that Germany was on the seventh rank compared to other European countries. Compared to 2009, the organic market grew by 2 %, and made up a share of 3.5 % of the country's total food sales (see Fig. 5) (Schaack et al., 2012).

In comparison to 2009, sales proceeds increased by 20 % in 2010, even though the amounts yielded of several crops were lower than in the previous year. So, German organic farmers gained 1,297,000,000 EUR altogether. Thereof, 240,000,000 EUR and 188,000,000 EUR were therein generated by proceeds of milk and cereals, respectively. However, fruits, vegetables and potatoes in sum were the most important product group amounting to 26.7 % of total organic sales proceeds, whereas it were just 10.4 % in conventional agriculture. A similar situation could be noticed for the sales of eggs, which made up 8.9 % of organic proceeds in 2010, but only 2.2 % of conventional ones. In contrast, meat was the most important product category for conventional farmers since they could gain 31.2 % of their sales proceeds from it, whereas it just amounted to 19.2 % in the organic sector (AMI, 2012b; BÖLW, 2012).

The most frequently asked organic product groups in the last years were bakery products, vegetables and fruits (especially carrots and apples) as well as dairy products. After a decrease in 2010, the demand for organic meat was growing by 28 % in 2011. Therein, especially pork was

required, and needs could not be met by the domestic production. Further, consumers continued asking for more poultry and eggs in organic quality (AMI, 2012a; BÖLW, 2012).
Overall, the demand of German costumers exceeds the domestic production in various categories. That is why, the organic market depends on imports, which made up between 2 % and 95 % of the sales volumes in 2010 for products that could even be produced in Germany (BÖLW, 2012; Schaack et al., 2011b). Schaack et al. (2011b) give a detailed analysis of organic imports to Germany for the business year 2009/2010, including import volumes and shares for the most important product categories. Referring to the study, Italy, Russia and Kazakhstan as well as several Eastern European countries were suppliers for organic cereals and protein crops. As to vegetables, important supplying countries were the Netherlands, Spain and Israel. However, also Asian and Latin American states were gaining importance as producers of organic oilseeds, particularly soybeans, and fruits. Germany's neighbouring countries Denmark and Austria also played an important role as suppliers of milk and dairy products as well as of pork, and the latter of apples and potatoes, too (Schaack et al., 2011b).

Concerning Germany's trade with conventional agricultural products, the total value of imports made up 60,674,000,000 EUR in 2010, from which 68 % came from other member states of the EU. In comparison, exports amounting to 51,822,000,000 EUR were realised in the same year, wherein 78 % went to EU countries. In both cases, the Netherlands were Germany's most important trading partner, followed by France and Italy. Austria and the Czech Republic played a bigger role as target countries for German exports than as suppliers of agricultural goods. With regard to commodity groups, the trade of meat, in particular, the export of pork and associated products, was most dominant within conventional agricultural products (BMELV, 2012a).

For the German consumers, motives concerning their personal health are the most important reasons to buy organic products. More precisely, consumers decide for organic food because they consider it to taste better, to contain fewer residues, and to be healthier in general. In consequence, classical motives like income and education which were supposed to influence consumption decisions towards organic products do not have a significant influence anymore, and neither altruistic aims concerning environmental effects are generally relevant. However, the organic market could not reach consumers with positive attitudes towards fast food and snacks yet (Buder and Hamm, 2011).

In 2011, Germany's organic market continued growing since the turnover for organic food increased by 9 %. Hence, its sales volume amounted to 6,590,000,000 EUR altogether, which made up 3.7 % of the country's total food market. This development was also influenced by two food scandals which happened in Germany in 2011, namely the contamination of conventional forage with dioxin in the beginning and the so-called EHEC crisis affecting vegetables in the middle of the year. Therefore, the demand for organic animal products was growing substantially, whereas fruits, vegetables and potatoes were less frequently bought (BÖLW, 2012).

3.2.3 Policy instruments

Legal instruments

In Germany, the national act to implement Council Regulation (EC) No. 834/2007 is the so-called 'Öko-Landbaugesetz' (ÖLG) [Act on organic agriculture] of 7 December 2008, which was for the first time introduced in 2002 (BMELV, 2012b). Herein, it is regulated which competences are given either to the federal states or to the 'Bundesanstalt für Landwirtschaft und Ernährung' (BLE) [Federal Agency for Agriculture and Nutrition], which acts on a national level. With regards to content, the act basically governs the certification system of the organic sector since the certifying enterprises are private companies (ÖLG, 2008). Besides, there is the so-called 'Öko-Kennzeichengesetz' [Act of 20 January 2009 on organic labelling] as well as the 'Öko-Kennzeichenverordnung' [Regulation of 6 February 2002 on organic labelling] which set rules for the labelling of organic products and the use of the national 'Bio-Siegel' (see below) (BMELV, 2012b).

Action programme

Organic agriculture is promoted by the so-called 'Bundesprogramm Ökologischer Landbau und andere Formen nachhaltiger Landwirtschaft' (BÖLN) [Federal scheme for organic farming and other forms of sustainable agriculture]. Started in 2001 to support organic farming, the programme was expanded in 2010 to include other forms of sustainable agriculture, too. It is organised by the Federal Ministry of Nutrition, Agriculture and Consumer Protection BMELV and its associated institutions, and supposed to be continued at least until 2015 (BLE, 2012b).

The BÖLN aims to improve the general conditions for organic and sustainable agriculture in Germany, and to enable the sector's demand and supply side to grow equally weighted. Even though the programme's primary objective was to inform and educate stakeholders along the

whole supply chain about organic farming, the emphasis is nowadays put on research activities, which are operating on both national and international level. At the moment, more than 700 research projects spread over the categories education, food, plants, animals, certification and control and economy are granted. Besides, various programmes to educate producers as well as consumers and to implement research results into practice on production, processing, marketing and trade are ongoing. Since 2007, the annual budget of the BÖLN has been 16,000,000 EUR, whereas its budget in the first two years and until 2007 was 35,000,000 EUR and 20,000,000 EUR, respectively. In 2008, the BÖLN was included in Germany's action plan as an official measure for the United Nations Decade of 'Education for sustainable development' (BLE, 2012b).

Financial instruments

In Germany, subsidies for organic agriculture are regulated by the federal states. In 2011, there were 14 different support programmes since the city states Hamburg and Berlin cooperate with their surrounding states. Generally, the financial support for organic farmers is highest in the first two years of the conversion period, and lower from the sixth year of cultivation under organic principles. The framework programme for the period from 2010 to 2013 has been set nationwide, and looks as follows. For arable land and permanent grassland, farmers can receive about 210 EUR/ha in the years of conversion and 170 EUR/ha for the perpetuation of organic farming practices. Subsidies for permanent crops amount to 900 EUR/ha and 720 EUR/ha, respectively, wherein typical wine regions like Rhineland-Palatinate can have specific regulations for the support of vineyards. For the growing of vegetables, the financial support was about 480 EUR/ha in the first years and 300 EUR/ha after the conversion period. In addition, further support regarding the control system is possible in most regions. Some states fix the maximum an enterprise can receive per year at 40,000 EUR. However, since financial means are insufficient, some states do not accept new subsidy applications from organic farmers anymore (BLE, 2012a; BMELV, 2012b).

Organic agriculture has been supported in Germany since 1989. Since 1994, subsidies have been managed through an agri-environmental programme of the federal states, wherein 60 % of the support is financed by the Federation and 40 % by Germany's federal states. To receive financial support, it is an obligatory requirement for German farmers to convert their whole enterprise to organic agriculture. In 2009, a total amount of 137,000,000 EUR of public money was spent to support organic agricultural production (BMELV, 2012b).

In the business year 2010/2011, organic farmers could boost their profits by almost 30 % in comparison to the previous year. With an average income of 30,129 EUR, organic enterprises earn 14.7 % more than comparable conventional ones that have 26,271 EUR at their average disposal. The earnings had continuously been rising in the last decade to a maximum in the business year 2007/2008, after which two years of decreasing profits followed. However, these figures include the financial support organic farmers receive. In case bonuses were excluded, the profit made by organic enterprises was consequently below the income generated by conventional farms (Johann Heinrich von Thünen-Institut, 2012).

Communicative instruments

In 2001, a national label for organic products, which is called 'Bio-Siegel' (see annex), was introduced in Germany. This label can be used voluntarily to mark products that fulfil the requirements of Council Regulation (EC) No. 834/2007. By the end of June 2012, the 'Bio-Siegel' was used by 4,106 enterprises to label a total number of 65,117 organic products (BLE, 2012c). Since its introduction, the BMELV has systematically promoted the national organic label to raise consumer awareness towards organic products and make consumption decisions easier. For this reason, interested people can provide themselves with background information about the label and its application using the website www.bio-siegel.de (BLE, 2012). Besides the national 'Bio-Siegel', the organic associations come with their own labels (BMELV, 2012b).

The biggest online information service, which is launched by the Federal Agency for Agriculture and Nutrition BLE, is www.oekolandbau.de. Here, a tool for farmers and processors, traders and consumers, students and teachers as well as journalists and researchers is given to provide these target groups with introductory information about organic agriculture.

Next to the provision of information material, more than 200 organic farms are currently listed as demonstration farms for organic agriculture within a network that was initiated by the BLE in 2002. Spread over whole Germany, these farms aim to show to the public, for instance to consumer initiatives, potential trading partners and pupils, the principles and advantages of organic farming in practice. Therefore, special events are set out regularly (BLE, 2012d).

3.3 The organic sector in Austria

The Republic of Austria has had a leading role in organic agriculture. With an organic proportion of about 20 % of the total agricultural area and an organic market share of 6.5 % of all sold fresh products in 2010 (see Fig. 5), Austria possesses the largest organic sector within the European

Union (BMLFUW, 2011). Organic agriculture has a long tradition in the alpine country, and has consequently been politically supported. Today, Austria's established organic market needs to face the challenge of a further sustainable development.

3.3.1 Production

In 2010, the subsidised area under organic management (alpine pastures included) in Austria was 538,210 ha, which made up a share of 19.5 % of the utilised agricultural area (see Fig. 3). Austria's organic farming area grew by 3.9 % compared to the previous year. It was cultivated by 21,728 subsidised farmers in 2010, which is a rise of 4.1 % in comparison to 2009. These organic farmers represent 16.2 % of all agricultural enterprises in Austria. Even though the overall agricultural production was declining in 2009, the number of supported organic enterprises was rising by 4.6 % in the same period. The average organic farm size in 2010 was 33 ha (BMLFUW, 2011).

The foundation of the first organic farms in Austria dates back almost 100 years. From 1970, organic farmers started to get organised and have founded associations. After the introduction of the first official guidelines for organic farming in 1983 and the first subsidy programmes, the sector experienced a boom in the beginning of the 1990s. In 1990, there had been 1,539 organic farmers in Austria, whereas there were already 18,542 in 1995. For the most part, this expansion took place in Western Austria where traditionally large extensive grassland areas are located. During the last decade, primarily areas in Eastern Austria were converted to organic arable land. Nowadays, the sector has reached a state of consolidation and professionalism (FiBL, 2010).

Permanent grassland under organic management amounted to an area of 343,162 ha in 2010, and therefore made up almost 64 % of Austria's total organic land (see Fig. 2). Traditionally, it is dominant in the Western alpine parts of the country where also conventional, extensive animal husbandry is widespread. About one quarter of the Austrian grassland areas is managed with organic methods. Even though the permanent grassland area stayed almost constant in comparison to 2009, the number of husbanded animals slightly increased. Especially the number of dairy cows rose by 4 % to 94,638 in 2010, and the produced amount of milk increased by 6 % to 476,488 t (BMLFUW, 2011). Since 2009, alpine pastures have been included in the statistics of the organic agricultural area in Austria (FiBL, 2010).

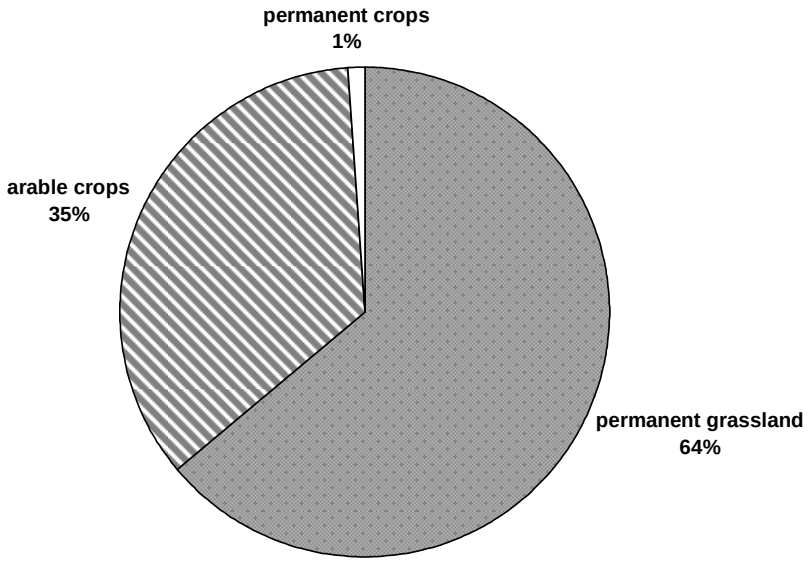

Fig. 2: Use of organic agricultural land in Austria 2010 (BMLFUW, 2011)

The area of organic arable land was 189,056 ha in 2010 (see Fig. 2), which is 11 % more than in 2009 and made up 13.7 % of Austria's total arable land. The cultivation of organic arable land is concentrated in the federal states Lower Austria, Burgenland and Upper Austria in the country's Eastern part. In 2000, however, the organically managed arable area had only been 68,592 ha. Since then, it has continuously been rising due to the high price level of organic crops, improved techniques in organic farming and increasing conversion of farms with acreage of more than 50 ha towards organic practices. Amongst the crops in arable land, the highest growth rates in 2010 could be gained for organic soy, the production of which increased by 30 %. However, the area where soy was cultivated grew by almost 50 %, but yields per hectare were below the average. Altogether, the area used for organic legumes rose by 50 % to 12,532 ha. In addition, 11 % more fodder plants were produced than in 2009 (55,068 ha in 2010), which underlines the rising demand for high-energy feeding stuff. Further, there was a slight expansion in the production of cereals towards an area of 95,569 ha. On the other hand, yields for table potatoes were low, which is why their production decreased by 28 % (BMLFUW, 2011).

Permanent crops represented about 1 % of the organic agricultural area in Austria in 2010 (see Fig. 2). Thereby, organic orchards amounted to 2,086 ha, which was 3.6 % more than in the previous year and made up 16 % of the country's total number of orchards. However, just half of

the organic fruits consumed in Austria are from domestic production. Besides, organic viticulture has gained in importance, too. With a plus of 20 % in 2010, Austria had 3,863 ha organic vineyards, which is almost 10 % of the total area for winegrowing. Organic wines have consequently been getting more important in the quality wines' sector, too (BMLFUW, 2011).

In Austria, organic agriculture organisations play an important role in the arrangement of the organic sector. More than 13,000 farmers are members in Bio Austria, the largest organisation. Several others act on a national or regional level and realise tasks in the promotion of organic farming, product marketing and advice for farmers (FiBL, 2010).

In 2011, 16.4 % of the Austrian farmers worked with organic methods, and the organically cultivated area made up 19.6 % of Austria's total agricultural area (see Fig. 3). Therein, arable land amounted to 189,679 ha, which is in increase of 0.3 % compared to 2010. Particular accretions can be noticed in the production of wine and potatoes as well as of pork, chicken, eggs and milk. However, the permanent grassland area has slightly decreased, so that the organic sector in Austria has basically stayed on its production level of 2010 (Bio Austria, 2012a).

3.3.2 Market

In 2010, organic food and beverages with a total value of 986,000,000 EUR were sold in Austria. With a per-capita consumption of 117.80 EUR per year, Austrians are amongst the most intensive organic consumers in Europe since higher annual spendings per person can just be found in Switzerland, Denmark and Luxembourg. In comparison to 2009, Austria's organic food market grew by 13.6 % in 2010 (Schaack et al., 2012).
After its first stagnation in 2008 and 2009, due to the economic crisis and increasing food prices, the organic food market experienced a boom again in the beginning of 2010 from which both retailers and direct sellers benefited. In 2010, almost 22 % more fresh organic products (except bread) were sold than in 2009. The main reason for this growth is that discounters have changed large parts of their segments of fresh products towards their own organic retail brands. Well-established products on the Austrian organic market are butter, cheese, fresh fruits and vegetables as well as potatoes and eggs. Especially dairy products are gaining higher market shares. In contrast, sales of organic meat, poultry and ham are less important and have not increased for years (BMLFUW, 2011).

From the turnover of 986,000,000 EUR in Austria's organic market in 2010, products for 758,200,000 EUR altogether were sold by retailers, which is a plus of 14.1 % compared to 2009. Specialised organic shops contributed with sales of 152,600,000 EUR (+ 9 %) to the market, and direct sales amounted to 76,300,000 EUR (+ 8 %). In addition, Austria exported organic products with a total value of 75,900,000 EUR in 2010, which is 8 % more than in the previous year. With 18 %, the highest growth rate can be noticed in the catering sector, wherein organic food and beverages worth 59,700,000 EUR were sold in Austrian canteens, hotels and restaurants. Altogether, Bio Austria numbers the turnover in the organic sector with 1,123,000,000 EUR (Bio Austria, 2011). At present, 50 % of the organic food sold in Austria originates from domestic production. The rate of self-sufficiency is highest for bread, milk and dairy products, and meat, which is sold in domestic retail. Contrarily, the demand for fruits and vegetables can just be covered by imports, where Austria especially depends on Germany, Italy and Spain as source countries (FiBL, 2010).

In general, the member states of the European Union are Austria's most important partners for agricultural trade. In total, 84.5 % of the imports came from the EU and 77.2 % of the exports went to the EU in 2010 (BMLFUW, 2011). On a value basis, Germany thereby is clearly the first trading partner since agricultural products and foods amounting to 3.33 billion EUR were imported from and 2.62 billion EUR exported to the federal republic. Afterwards, Italy, the Netherlands and Hungary are major partners. The total trade with the Czech Republic accounted for 251 million EUR imports and 244 million EUR exports in 2010, what makes this neighbouring country Austria's fifth most important partner for agricultural trade (BMLFUW, 2011).

For the Austrian consumers, 'health aspects' are the main reason to consume organic products. Of further importance are arguments like 'without chemical additives and fertilizer', 'better taste' and 'control'. In contrast, environmental and animal protection are rarely mentioned reasons to buy organic. A higher price for organic products is reasonable for 59 % of the Austrian consumers (BMLFUW, 2011). Even though the availability of organic products in discounters makes them more affordable for interested consumers, still about 20 % of the organic consumers are responsible for 80 % of the whole sales. Besides organic principles, regionalism gains importance in being an additional argument for consumption decisions (FiBL, 2010).

In 2011, overall sales of organic products stayed on a similar level as in 2010. The turnover of organic meat and meat products increased by 0.9 percentage points to a market share of 3.8 %

(Bio Austria, 2012a). According to Agrarmarkt Austria Marketing, the organic market volume even slightly decreased in 2011 (AMA, 2012).

3.3.3 Policy instruments

Legal instruments

Austria was one of the first countries in the world to set national guidelines for organic farming. Published in the so-called Österreichisches Lebensmittelbuch or Codex Alimentarius Austriacus, the first official standards for organic production were given in 1989. Today, chapter A 8 of the codex provides instructions for organic animal husbandry, the control system within the organic sector, and requirements for organic products as well as communal feeding, organic pet food and cosmetics (Österreichisches Lebensmittelbuch, 2012). The Codex Alimentarius Austriacus is not a national law, but implies broadly accepted standards and practices in the food sector (Bundesministerium für Gesundheit, 2012).

Action programme

The 'Aktionsprogramm Biologische Landwirtschaft' (also 'Bio-Aktionsprogramm'), an action programme to promote organic agriculture, was introduced for the first time in 2001. Since then, three actualised programmes have been started. At the moment, the 'Aktionsprogramm Biologische Landwirtschaft 2008-2010' continues being valid since its aims and actions have already been successfully implemented to some extent and need to be pursued continuously (BMLFUW, 2012a).

The overall aim of the action programme is to establish Austria's position as the leading organic country in the European Union, and to further develop all branches of the domestic organic sector (BMLFUW, 2008). Whereas sales of organic products are continuously increasing, organic areas are not growing by the same extent anymore. Although the aim of having an organically cultivated area of 20 % of the total agricultural area until 2010 could almost be achieved, the domestic production within some product categories is not enough to cover the demand. Hence, the Action programme wants to boost the cultivation of, especially, fruits and vegetables in Austria. What is more, the demand for product groups with low market volume, like organic meat, needs to be enhanced. Therefore, Austria provides an investment programme which supports the conversion towards organic agriculture as well as the modernisation of and broader marketing strategies for organic farms (BMLFUW, 2008).

The second field which is addressed by the action programme is education and consulting, which is subsidised with 8.5 million EUR annually. Therein, systematically targeted education programmes for farmers, teachers of agricultural technical schools and other consulters are supposed to be implemented and continued to spread and establish up-to-date knowledge about organic agriculture. Thirdly, active research to develop holistic concepts for organic production systems concerning their ecological and economical longevity is enhanced by Austria's action programme. Besides the national project 'PFEIL 10', transnational research projects have been co-financed. At last, public relations are the fourth field of the 'Bio-Aktionsprogramm'. Here, actions especially dealing with the environmental and health benefits of organic agriculture need to be communicated to the society, in which particular target groups are institutions of communal feeding, young mothers, and the 'Bio-Aktionstage' (see below) (BMLFUW, 2008).

In general, one of the most important means to finance the promotion of organic agriculture is the so-called 'Österreichisches Programm zur Förderung einer umweltgerechten, extensiven und den natürlichen Lebensraum schützenden Landwirtschaft' (ÖPUL) [Austrian Agri-Environmental Programme], which is described further below. Comprehensively, this action programme aims to improve the cooperation between all stakeholders who are involved in the organic sector, and declares this to be an essential means to make the sector progressive and work efficiently, for instance, considering product innovation processes and the use of research results in consulting (BMLFUW, 2008).

Financial instruments

The Republic of Austria joined the European Union in 1995. At this time, the Agri-Environmental Programme ÖPUL was implemented, which is the main financial tool to support the development of rural areas. Altogether, ÖPUL subsidised 116,122 enterprises cultivating an area of 2.2 million ha (89 % of Austria's total agricultural area) with 554,000,000 EUR in 2010. For 2011, 549,200,000 EUR were paid to 114,508 enterprises, which are 74 % of all producing firms. ÖPUL supports a broad variety of environment-friendly agricultural activities, and aims to involve almost all Austrian farmers in the promotion towards a sustainable development of the country's rural areas (BMLFUW, 2012b). Within the period from 2007 to 2013, organic farmers can receive the following subsidies from the Agri-Environmental Programme. For arable crops, the support is between 285 EUR/ha and 600 EUR/ha with the highest rates for vegetables. Depending on the number of cattle, subsidies for grassland are 110 EUR/ha to 240 EUR/ha. For vineyards and orchards, organic farmers are given 750 EUR/ha, and the bonus for protected

growing in greenhouses is 4200 EUR/ha. Organic farmers also have the possibility to combine these subsidies with further payments for particular environmentally protecting and conserving activities (Bio Austria, 2006). So, Austria's financial support for organic agriculture has been amongst the highest in the European Union (BMLFUW, 2011; Stolze and Lampkin, 2009). In addition to the financial means for farmers, an amount of 1,440,000 EUR altogether was paid to organic agriculture organisations for public relations, consultancy and organisational activities in 2010 (BMLFUW, 2011).

Organic farms generated an income from agriculture and forestry of 23,109 EUR per farm in 2010, which is a plus of 9 % compared to the previous year, and almost 1 % more than the over all farms average in Austria. Each farm was supported by public means amounting to 22,314 EUR (3 % more than in 2009), which made up 30 % of their income. The public farm payments to support organic enterprises were mainly financed from the Austrian Agri-Environmental Programme ÖPUL (41 %), single farm payments (22 %) and a compensatory allowance (19 %) (BMLFUW, 2011).

Communicative instruments

Besides the compulsory EU organic label, the most frequently used national label to mark organic products is provided by the company Agrarmarkt Austria Marketing (AMA), which can be found in two versions (see annex). The first possibility is for farmers, processors and traders that use at least two thirds domestically produced and processed ingredients, so the label indicates Austria as origin of these ingredients. Besides, for organic products which are not mainly from Austria, a version of the label without indication of origin is available, too (AMA, 2011a). Additionally, various other associations like Bio Austria as well as retail chains use their own symbols to label organic products (FiBL, 2010).

Currently, the largest national campaign to promote organic farming is called 'Bio-Aktionstage' [Bio Action Days]. In this annually repeated event, organic farmers, markets and specialised food shops invite the public to visit domestic enterprises and try organic products. These Action Days usually last about one week, and the participants create further entertainment programmes to catch consumers' interests towards organic agriculture. The 'Bio-Aktionstage' were introduced in 2006, and are financed by means of the EU, the BMLFUW and AMA (AMA, 2011b).

Besides the websites of various national organic farming organisations, the most often recommended online information sources are the following. AMA organises the online service www.bioinfo.at, which is supported by the Austrian Federal Ministry of Agriculture. Here, con-

sumers can find information about personal and social advantages of organic farming as well as recipes and tips on where organic products are available. The biggest farmers' association Bio Austria also provides news online at www.bio-austria.at.

3.4 The organic sector in the Czech Republic

In the Czech Republic, the organic production has been promoted by the government for the last 15 years. Therefore, especially the area of permanent grassland under organic management has grown rapidly. However, most farmers highly depend on subsidies, and the market development is still on a comparatively low level. Consequently, challenges for future policy strategies will be in the formation of domestic market structures like a sufficient domestic food processing infrastructure and raised consumer awareness.

3.4.1 Production

In the Czech Republic, organic agriculture grew rapidly during the last two decades. At the end of 1991, there were 132 farmers cultivating an area of 17,507 ha with organic production methods. The highest growth rates of the organic agricultural area are reported for the years 1998 to 2001, and again from 2006 the annual growth rate of organically managed land in the Czech Republic has been about 12 %. Further, the number of organic farms has increased on a higher range than the cultivated area since 2006 with a growth rate of 30.8 % in 2010 (Hrabalová, 2011a). On 31 December 2010, an area of organic farmland of 448,202 ha was registered, which was cultivated by 3,517 farmers and made up 10.55 % of the country's total farmland (see Fig. 3) (MZe, 2011).

Obviously, the Czech organic production is dominated by livestock breeding as the proportion of permanent grassland was 369,272 ha (82.4 %) at the end of 2010 (see Fig. 4) (MZe, 2011). In the same year, the average cattle stock was 151,814 animals (Hrabalová, 2011a). Permanent grassland areas can especially be found in mountainous and sub-mountainous regions, and those grazing livestock farms put focus on landscape preservation. Because of the predominance of grassland areas, 61 % of the organic area in the Czech Republic is managed in farms larger than 500 ha. However, the average farm size has continuously decreased in the last decade, and constituted 127 ha in 2010 (Hrabalová, 2011b). Within the organic animal husbandry, other numerously important species are sheep, poultry and goats (Hrabalová, 2011a).

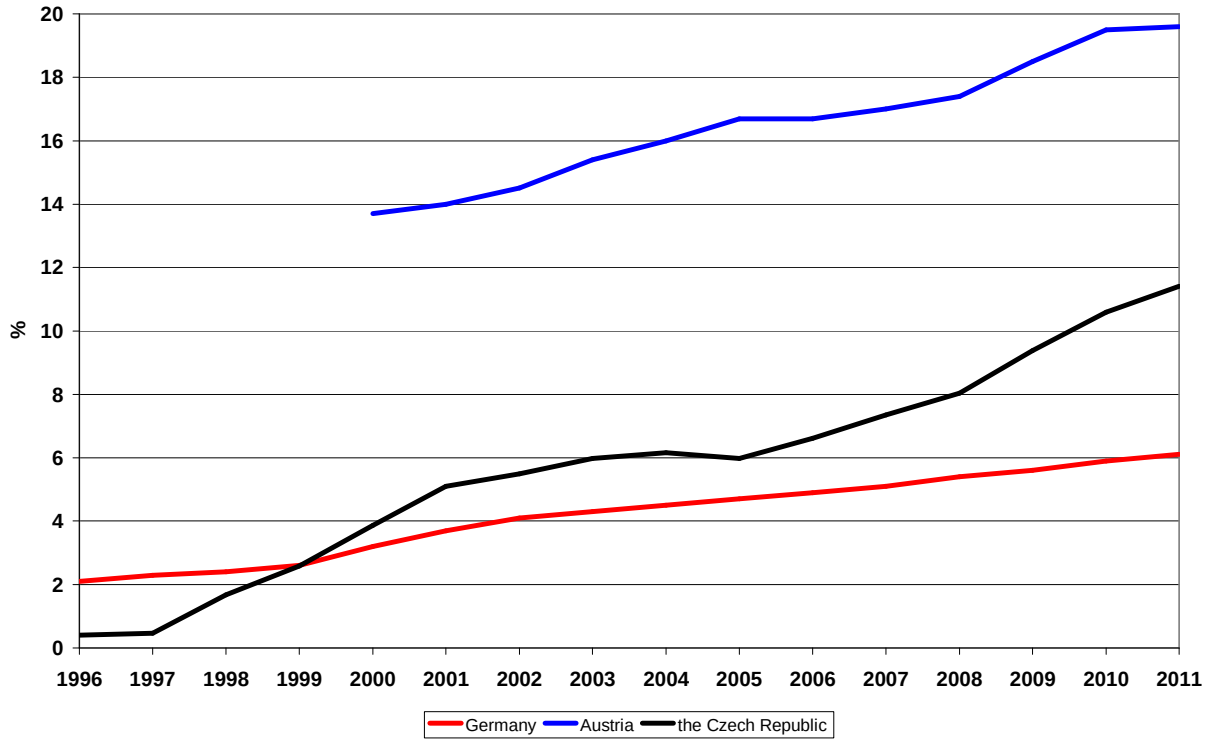

Fig. 3: Share of organic agricultural area of the total agricultural area in Germany, Austria and the Czech Republic 1996-2011 (Bio Austria, 2012a; BMELV, 2012b; BÖLW, 2012; Hrabalová, 2011; MZe, 2012a)

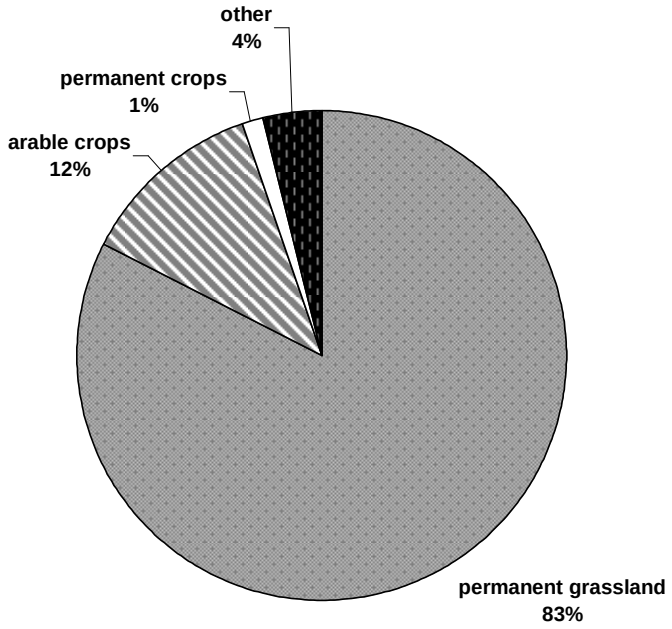

Fig. 4: Use of organic agricultural land in the Czech Republic 2010 (MZe, 2011)

Živělová et al. (2003) published a detailed analysis of the economic efficiency of organic cattle management in the Czech Republic. Therein, the authors assert that the total costs for beef cattle per head and year are not necessarily different between organic and conventional production methods. However, organic farmers have about 10 % higher costs for the production of one litre milk. In addition, the management of hayfields and pastures needs to be taken into consideration wherein organic farmers note significantly higher costs to produce hay and green fodder (Živělová et al., 2003). Hrabalová and Zander (2006) state that the sector of organic production of animal products is not long-term orientated since the farmers' production and economic success mainly depend on financial support from the state, and the market for organic beef and dairy products is underdeveloped. However, Zagata (2009) shows that the sector of organic animal husbandry has become more differentiated during the last years. The keeping of chicken and egg production are widespread, but often just for household supply. Larger production and processing systems for chicken arise, which at the same time need to become competitive with conventional enterprises (Zagata, 2009).

In 2010, arable land accounted for 54,937 ha (12,3 %) of the total area under organic farming (see Fig. 4) (MZe, 2011). Thereof, the largest cultivation areas and biggest production amounts come from cereals (24,485.85 ha and 40,564.81 t, respectively), wherein the most important species are wheat, oat and spelt. Quantitatively almost equally important is the production of forage crops, of which 38,627.88 t were produced on 21,974.21 ha. Legumes, oilseeds and fresh vegetables play a tangential role (Hrabalová, 2011a). Further, the cultivation of permanent crops is gaining importance. Thereby, 5,128 ha orchards, 803 ha vineyards and 8 ha of hop-fields were registered as organic by the end of 2010 (MZe, 2011). All over, it needs to be mentioned that certified organic areas and areas under conversion are summed in these statistics so that for some crops a considerable part is not certified organic yet (Hrabalová, 2011a).

In parallel to the increasing domestic production of organic products, the number of processors is growing, too. On 31 December 2010, there were 626 registered processors in the Czech Republic, while it had been 497 in the previous year (MZe, 2011). However, structures for the production of ready-to-eat organic products are still poorly developed, which is why overall consumer demands can just be satisfied by imports (USDA, 2011). Even though the domestic primary production provides various unprocessed foods, processing industries focus on milk and dairy products, meat and wine while vegetable crops are often exported (Hrabalová, 2011a).

Statistics for 2011 show that the organic production in the Czech Republic has further increased. On 31 December 2011, the total utilizable space of land was 482,927 ha, from which 396,080 ha were permanent grassland, 59,281 ha arable land, 6,453 ha orchards, 965 ha vineyards and 10 ha hop-fields. Altogether, organic land represented 11.4 % of the country's total farmland acreage (see Fig. 3). Thereby, the share of permanent grassland and arable crops stayed constant with 82.4 % and 12.3 %, respectively. At the same time, 3'920 farmers and 646 processors were registered (MZe, 2012a). Though, these figures demonstrate that the absolute acreage was slightly decreasing at the end of a year since on 25 August 2011 an area of 483,176 ha under organic farming practices was registered, which was cultivated by 4,022 farmers (MZe, 2011).

3.4.2 Market

After a promising development between the years 2005 and 2008, the market for organic products in the Czech Republic experienced a stagnating turnover in 2009 and 2010. In 2010, domestic sales amounted to 1,600,000,000 CZK (60,871,220 EUR) (rate of exchange in 2010: 1 EUR = 26.285 CZK (MZe, 2011)) altogether with a per-capita spending of about 151 CZK (6 EUR) for organic food in that year. Thereby, the organic share in the total turnover of food sales was 0,6 % to 0.7 % (see Fig. 5) (Hrabalová and Dittrichová, 2012). The per-capita spending in the Czech Republic is amongst the highest compared to other Eastern European countries, but far below the Western European average (Schaack et al., 2012).

The Czech organic market is dominated by imported foodstuffs, which made up a share of 68 % in 2010. This state is related to the concentration of the producing and processing sector towards animal breeding and animal products (Hrabalová, 2011b; MZe, 2011). Consequently, especially plant crops were imported to the Czech Republic. Therein, almost all legumes and oilseeds came from Turkey and China, respectively, and about one third of the consumed cereals (2,329 t) was imported from Italy and Austria in 2010. In the same year, 69 % of the consumed organic fruit (1,460 t) and 84 % of vegetables (1,572 t) were imported goods, and the countries of origin were mainly Italy, the Netherlands and Spain as well as Austria and Germany. Considering animal products, 16,860,342 l of organic milk and more than one million eggs were imported in 2010, mainly from Slovakia and Hungary. As to meat, suppliers for imported beef (440.5 t) and poultry (143.8 t) were often not specified. However, 43 % of organic pork (123 t) were produced abroad, for the most part in Germany (Hrabalová and Dittrichová, 2012).

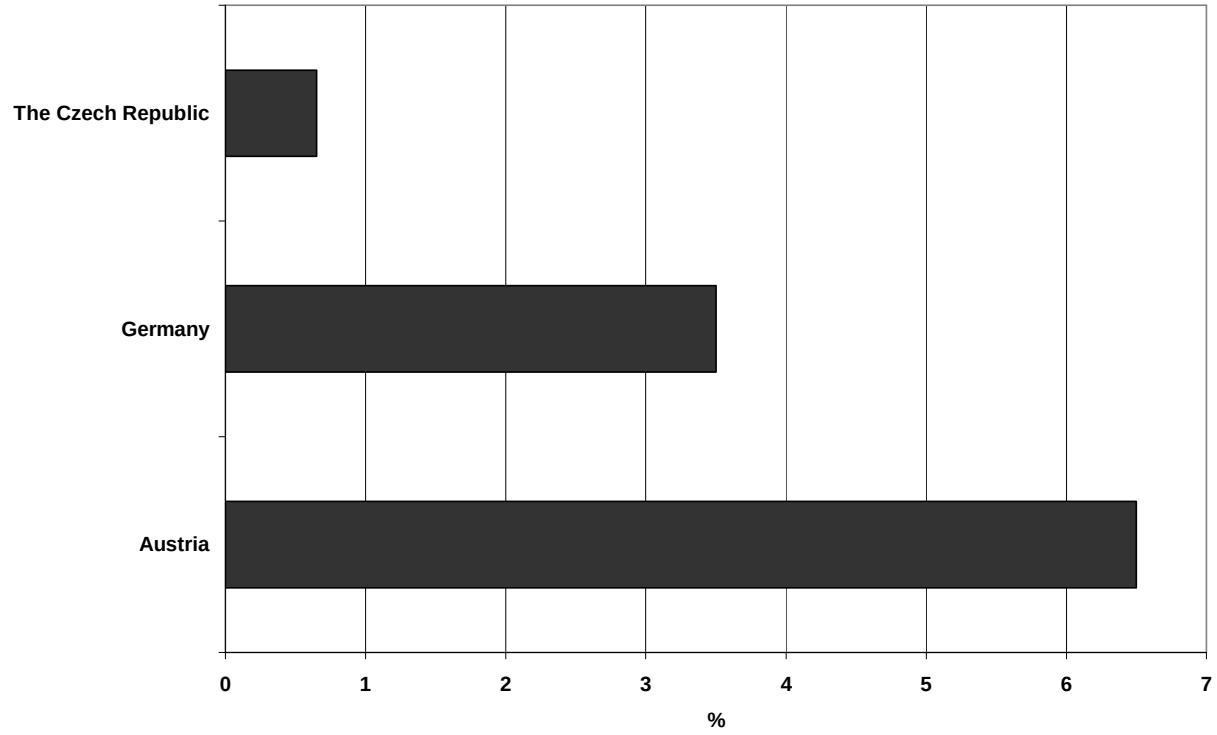

Fig. 5: Market share of organic products in the Czech Republic, Germany and Austria 2010 (BMLFUW, 2011; Hrabalová and Dittrichová, 2012; Schaack et al., 2012)

On the other hand, export has been an important and common choice made by Czech organic farmers, too. In 2010, organic products with a total value of 505,000,000 CZK (19,212,480 EUR) were exported, which made up about 24 % of the total production turnover (Hrabalová and Dittrichová, 2012). Referring to animal products, the entire domestic milk production and the vast majority of meat products was sold within the Czech Republic in 2009. In contrast, sales structures for vegetable crops are mixed. Whereas fruits like apples, pears and grapes were only sold on the domestic market, 90 % of carrots, 78 % of legumes and 62 % of potatoes were exported. Depending on the species, export rates for cereals are between 11 % and 62 % (MZe, 2011). The most important target country for exported organic products is Austria, followed by Eastern European countries like Slovakia and Poland as well as Germany (Hrabalová and Dittrichová, 2012).

In the Czech Republic, organic products were mostly sold by retail chains, which had a share of 48 % within the distribution channels in 2010. With 27 %, health food stores were in the second position. Compared to the previous year, both distribution ways gained importance since their shares were 40 % and 24 %, respectively, in 2009. Additionally, organic food sales through drugstores and pharmacies were increasing, whereas customers mostly bought organic baby

foodstuffs in the latter. In contrast, direct sales from farms and on markets as well as offers in restaurants and catering have still played a subordinate role (Hrabalová and Dittrichová, 2012). Doležalová et al. (2009) give a broad analysis of chain store companies selling organic food in the region of South Bohemia. The authors work out that regional cooperation and individual marketing strategies of supermarkets as well as the higher buying potential in bigger cities stimulate the sale of organic foodstuffs (Doležalová et al., 2009).

In a survey in November 2010, 37 % of the consumers stated that they bought organic products, whereas 14 % bought them regularly. 40 % declared that the price was the main obstacle not to decide for organics. Even though almost all participants said that they recognized that organic products were available in their surroundings, just 54 % knew the national organic food label and what organic agriculture was about. In comparison to November 2008, the share of people buying organic stayed on the same level. However, the awareness that organic products are available has significantly increased since July 2006 (MZe, 2011). Zámková and Blašková (2012) discuss in their analysis of shopping patterns amongst young people in the Czech Republic that organic products have become more popular, especially for young women, but that a lot of consumers mistrust organic foodstuffs. More than 50 % of the participants think that organic products are insufficiently promoted, and the authors summarise that advertising is still on a very low level (Zámková and Blašková, 2012).

For the future perspective of the organic market in the Czech Republic, it needs to be recognised that state policies have not supported the domestic market's development (Hrabalová, 2011b). Hrabalová and Dittrichová (2012) draw the conclusion that the latest international economic crisis has slowed the development of the Czech organic market rapidly down since 2009. Due to the ongoing economic slowdown, the authors expect the market to grow on a low level in the upcoming years (Hrabalová and Dittrichová, 2012).

3.4.3 Policy instruments

Legal instruments

In the Czech Republic, the first national legislation on organic farming and organic products was introduced in 1992. Since 01.01.2012, the country's organic sector has been regulated by Act No. 344/2011 Coll. of 21 October 2011 on ecological agriculture, which is based on the legislation of the EU. The law amends Act No. 242/2000 Coll., and provides the legal framework for

administrative procedures regarding the registration of organic enterprises as well as the control system of the Czech organic sector (MZe, 2012a).

Action plan for the development of organic farming

In 2011, the Czech Ministry of Agriculture published the 'Action Plan of the Czech Republic for the Development of Organic Farming between 2011 and 2015' (MZe, 2011). Its main vision is that 'Organic farming will be a fully developed sector of agriculture with all appropriate characteristics, such as a stable market, services and state policy support for providing public goods including aspects relating to the environment and animal welfare' by 2020 (MZe, 2011, p. 21). More than before, the focus should be put on long-term market establishment as well as on the improvement of domestic food processing conditions. In particular, the aims (MZe, 2011) are to

1) Achieve a 15 % organic share of the total agricultural area with a minimum 20 % share of arable land
2) Achieve a 3 % organic food share of the total amount of processed food, and increase the proportion of organic food from the Czech Republic to 60 %
3) Achieve an increase in the consumption of organic food of at least 20 % per year
4) Enhance consumer confidence
5) Increase income share from production or processing against subsidies
6) Increase the benefit from organic farming to the environment, animal welfare and human health

The action plan includes a list of main activities for each subject area. For instance, research and monitoring targeting the organic sector should be enhanced, and the support of regional organic food sales as well as education projects towards higher consumer confidence in organic farming are high priority activities. To ensure their implementation, responsible persons and cooperating institutions are named, and years for the projects' realisation are fixed. As a conclusion, both strong and week points and opportunities and threats of organic farming in the Czech Republic are summarised (MZe, 2011).

The current action plan replaces the previous one, which was introduced in 2004 to promote the development of organic agriculture in the Czech Republic until 2010. The main aim of that plan was to achieve a share of 10 % of the total agricultural area managed under organic methods by the end of 2010, which could actually be fulfilled successfully (MZe, 2011).

In conclusion, strengths and weaknesses of the former organic agricultural policy have been analysed, and the presently valid action plan has been adapted with regard to contents and methods.

However, the action plan has not had an own budget with the help of which the declared aims could have been supposed to get realised (Moschitz and Stolze, 2010; Václavík, 2012).

Financial instruments

Since 1998, organic farming has been financially supported by the Czech Ministry of Agriculture. In 2010, subsidies amounting to 1,154,028,000 CZK (43,904,430 EUR) were paid altogether (MZe, 2012a). The amount of the subsidies paid to farmers varies according to the land use. In 2011, monetary values were as follows. For the cultivation of arable land, 155 EUR/ha were paid, whereas farmers growing vegetables or special herbs obtained 564 EUR/ha. Farmers with exclusive organic grassland received 89 EUR/ha, while farmers with both organic and conventional areas got 71 EUR/ha. For the management of organic vineyards, orchards and hopfields subsidies accounted to 849 EUR/ha, and 510 EUR/ha for the management of extensive orchards. The current payments are fixed components of the Rural Development Programme for the period from 2007 to 2013 (Hrabalová, 2011a; MZe, 2012a).

When the financial support for organic farming started in 1998, 1.67 % of the total agricultural area in the Czech Republic was under organic production methods. In the same year, a total amount of 48,091,000 CZK (1,829,600 EUR) was paid as subsidies. Both the subsidy payments and the organic farming area have continuously increased since then (Jánský and Živělová, 2007; MZe, 2011). The governmental regulations to support organic agriculture ran through various changes between 1998 and 2004, and took the non-productive functions of agriculture into special consideration (Hrabalová, 2009; Jánský and Živělová, 2007). However, financial support used to be the only policy instrument supporting organic agriculture until 2004. Finally, direct payments for areas under organic agriculture led to the rapid development of the organic grazing livestock sector up to a share of nearly 90 % of the total organic area. As a consequence, the organic sector was characterized by an oversupply of beef facing an underdeveloped market, and its development has highly depended on state support (Hrabalová, 2009).

Additionally, Brožová (2011) argues that subsidies are, besides natural and climatic conditions, a limiting factor for the economic success of organic enterprises. In comparison to conventional agriculture, organic farmers receive higher subsidies to compensate loss of profit due to lower incomes or yields, and because of the environmental preservation their systems provide. Hence, 84.9 % of the examined farms are economically successful when subsidies are included to the yields. In contrast, 95.7 % of enterprises are loss-making when subsidies are excluded. Therein, farmers cultivating permanent grassland are more likely to have a positive economic result than farmers without grazing areas (Brožová, 2011).

In summary, it is obvious that subsidies have been the main driving force for the growth of organic production in the Czech Republic, and continue being an important policy means for supporting organic farmers nowadays.

Communicative instruments

The Czech Republic has its own national label to mark products from organic agriculture (see annex). It is obligatory to label food produced in the Czech Republic with the national as well as the EU label. Imported goods can, but do not need to be designated with it. Because of its design, the Czech organic food label is often called 'biozebra' (MZe, 2012b).

Between 2008 and 2010, the largest information campaign to promote organic food was carried out in the Czech Republic ('Propagace ekologického zemědělství a jeho produktů – přírodní bohatství' [Promotion of organic farming and its products – natural wealth]). It was the first state-owned campaign aiming to increase consumer awareness towards organic agriculture, and financed with a total amount of 29,000,000 CZK (1,103,290 EUR) (Hrabalová, 2011b; MZe, 2011). Besides, the annual event 'Září – Měsíc biopotravin a ekologického zemědělství' [September – Month of organic food and organic farming] was introduced in 2005 (MZe, 2011).

Furthermore, several online services were launched to provide information for consumers. The Czech Ministry of Agriculture has supported the introduction of www.biospotrebitel.cz where interested people can find, amongst others, current and background information about organic farming as well as advice where to buy organic products (MZe, 2011). Other examples for consumer orientated online information sources are www.bio-info.cz and www.pro-bio.cz.

3.5 European organic food market development scenarios

For policy makers and stakeholders who act within Europe's organic sector, the potential development of organic agriculture is of high interest for decision making. Therefore, Zanoli et al. (2012) present four scenarios on how the European organic food market could evolve by 2015, which are introduced here. Depending on an assumed increasing or reducing relative competitiveness of organic and conventional farming as well as the improvement or decline of the global socio-economic conditions and resource availability, the possible scenarios are 'stable expansion', 'policy-driven growth', 'agricultural industrialisation' and 'techno-sustainability' (see Fig. 6).

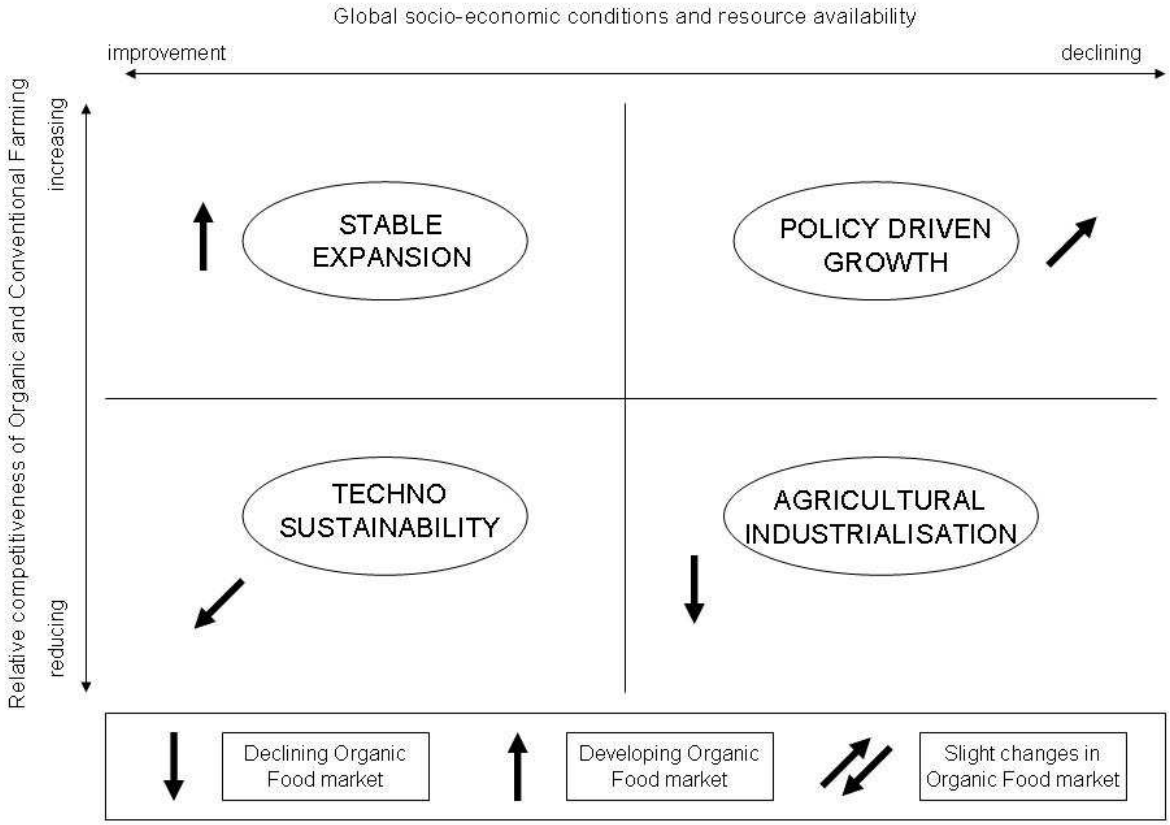

Fig. 6: Main scenarios for the organic food market (Zanoli et al., 2012)

In the first scenario, the stable expansion, the organic food market can realise its further extension against the background of an overall positive economic development with fast recovery from recession towards a stable political and monetary environment. Accordingly, differences between organic and conventional farming are getting fewer, which makes organic farming and products more attractive for policies, investments and consumers. Because of these comfortable conditions, especially small-to-medium sized enterprises will be the main driving force arranging the sector and reinvesting profits for a long-term development, consumers show higher awareness and willingness to pay, and public and private research and development influence each other in a positive way (Zanoli et al., 2012).

The second scenario, the policy-driven growth, assumes an international economic crisis with a worse socio-economic situation wherein the number of organic consumers is not expected to increase significantly. However, high policy response, which will be the sector's dominant driving force, resulting in amplified public research and development as well as higher payments for organic farming. Nevertheless, because of the increasing lack of resources, low-input farming

methods can become a comparative advantage, even though high price organic products will just be achievable for wealthy consumers (Zanoli et al., 2012).

An agricultural industrialisation, the third scenario, would result in a declining European organic food market. Here, general economic conditions are worsening, and organic farming is losing its competitiveness compared with conventional farming since policy support will not be continued. In contrast, the food market will be governed by intensive conventional practices. Since lower incomes and increasing food prices reduce the demand of organic products, they will just become available through highly specialised retailers (Zanoli et al., 2012).

In the fourth scenario called techno-sustainability, the international economic environment is improving, but organic agriculture's competitiveness with respect to new, highly technological farming systems is reduced. This time, technology is the scenario's basic driving force, and technological innovations are seen as a chance to cope with environmental challenges. Moreover, consumers now accept genetically modified organisms, which is why organic farming looses its previous advantages concerning health and environmental issues. All in all, organic production is becoming more expensive, and the organic market is declining to become a niche segment again (Zanoli et al., 2012).

Besides the particular scenarios, Zanoli et al. (2012) underline the overall importance and influence of agricultural policy and general economic trends towards the further development of organic agriculture in Europe. Paying attention to the current economic cycle, precise agricultural and rural policy interventions can therefore bring the organic sector effectively forward (Zanoli et al., 2012).

In addition, Häring et al. (2009) point out the effects multi-stakeholder processes can have on the development of the European organic farming policy. Therein, eight policy goals for organic agriculture in the EU are shown, and examples how to develop and connect policy instruments and concrete policy actions from these goals are given. All in all, the authors conclude that a 'broad range of stakeholders' including government, companies, public interest groups as well as research bodies has to be included in the process of both 'defining the problem' and 'searching for solutions and developing shared visions' (Häring et al., 2009). What is more, the cooperation between researchers and stakeholders from the practice can contribute to make research more related to real life, and allows the scientists to accompany their papers' realisation (Häring et al., 2009).

4 Discussion

In the following, the presented characteristics of organic production and market as well as applied policy instruments in Germany, Austria and the Czech Republic will be discussed and related to each other. In doing so, aspects which seem especially relevant for the sectors' previous and potential development are highlighted. As this development has taken and will take place against the background of common European trends and policies, ongoing tendencies in Europe's organic sector will be illustrated, too. With regards to further scientific work, some aspects concerning the availability of literature as well as current research projects are shown after. Finally, relevance and promising instruments of boosting organic farming within a networked Europe are summarised.

4.1 Development aspects of the organic sectors in Germany, Austria and the Czech Republic

4.1.1 Germany

Even though Germany's organic sector has not shown double-digit growth rates, its expansion during the last decades has happened continuously. In 2010, almost one third of all organic food sales In Europe originated in the German market, which therefore has had a signalling effect on the whole continent's organic business. Because of Germany's dependency on organic imports, the consumers' strong demand has also influenced the organic production in the countries who are trading partners.

As about animal products, Germany's organic sector especially depends on imports. Even though this market segment has been growing significantly and producer prices have been rising, the domestic production has stayed niched because of high costs of investments and forage (BÖLW, 2012). Accordingly, imports of high-protein organic fodder plants have gained importance, and supplying countries are for the most part out of Europe (Schaack et al., 2011b). Taking the domestic production and consumption as well as the trade with meat products as an example, particular differences between the organic and conventional food sectors have been evident. Whereas conventional pork and associated products were very important agricultural products in Germany's export in 2010, the domestic organic production could not meet the consumers' total demand.

Considering plant products, European countries like the Netherlands, Italy, France and Spain have been important suppliers of fresh fruit and vegetables, which has been a parallel to the conventional food market. Further, because of the climatic conditions, some plants cannot be produced in Germany, which is why this sector has been depending on imports. Besides, the market for organic apples has played a special role in Germany's organic sector. Here, import rates have been lower compared to other fruits and vegetables, and have basically been relevant when German apples were not available. Firstly, consumers have preferred domestically grown apples. Secondly, producers and producer associations have been cooperating to keep sales of German organic apples on high rates, which is why the stakeholders could stand the pressure of cheaper import goods (BÖLW, 2012).

In summary, Schaack et al. (2011b) attest German organic farmers possibilities to further develop markets in which imports have been prominent, for plant as well as for animal products. Finally, these chances will also depend on the political promotion and compensations for domestic organic farmers. On the other hand, the authors conclude that delivering countries could expand their export opportunities by producing for Germany's growing organic market (Schaack et al., 2011b), which accordingly means that their domestic markets could not be supplied with these products.

In the 20th century, interest groups and organic farmers associations were paving the way for the organic sector's development in Germany. Nowadays, changing consumption motives have come out as key focuses of interest for stakeholders to stimulate the market' demand side further, which is why they will be discussed in the following.

Buder and Hamm (2011) found out that classical criteria describing typical organic consumers, like higher education, age and income, have lost their relevance. Therefore, the authors conclude that health related marketing strategies which are focused on the needs and wants of specific target groups are a necessary and promising method to further expand Germany's organic market. Herein, especially the naturalness of organic products and the absence of additives could be important arguments to communicate the organic foods' additional values to the consumers (Buder and Hamm, 2011).

Additionally, consumers have been paying more attention to the origin of food, and the demand of regional products has been increasing. Consequently, also German organic producers and processors started on networking to merchandise locally, and retailers have boosted their marketing activities towards regional and organic products (BÖLW, 2012).

From of farmer's point of view, Groß (2004) criticises Germany's policies towards organic farming which have led to tendencies to conventionality within the sector. According to the author, the concrete stimulation of the market's demand side is compulsory to realise the further growth of the organic sector, and a promising instrument would be the support of communal feeding. Herein, particularly organic lunch offers in schools should be subsidised, which would not only stimulate the domestic organic production, but also contribute, amongst others, to the creation of regional value-added chains and the reduction of diet-related medical costs. Besides, the ongoing industrialisation of organic agriculture could be reduced by coupling area supports to the number of workers with social insurance (Groß, 2004).

4.1.2 Austria

During the boom of Austria's organic production in the beginning of the 1990s, especially the area used as permanent organic grassland was increasing rapidly in the country's alpine areas. Since then, even though the share of organic production in Austria is highest today, gains in acreage have never been as high again. Obviously, this is due to the broader expansion of organic farming to arable crops, which is connected with higher conversion costs. Nevertheless, the Austrian organic food market has been establishing and growing to reach highest shares within the EU during the last decade, and could overcome its stagnation from of 2008 and 2009 in 2010. Consequently, it can be concluded that the policy instruments implemented for organic agriculture have generally been appropriate and successful to boost the growth of the country's organic sector, and, what is more, Austria also argues for giving organic farming a top priority of the CAP after 2013 (FiBL, 2010).

Even though the development of organic agriculture in Austria can be seen as exemplary in Europe, latest production and market information have underlined the sector's consolidation trend. Thereby, the stagnation of the area under organic farming has been caused by limited entry for the current support period, which has been lasting from 2007 to 2013, since farmers who have converted their land recently towards organic farming have not been allowed to receive financial support anymore (Bio Austria, 2012a). As a conclusion, appreciable growth rates of organic farming land and the number of enterprises can still just be realised by paying appropriate compensations.

Moreover, Austria's action programme for organic farming, which was planned for the period from 2008 to 2010, was declared to be pursued, but updated aims have not been enunciated. As

the sector is already highly professionalized, the orientation on education and knowledge-based policy strategies is promising. Nevertheless, successful instruments should continuously be evaluated and improved, too. Gottwald and Boergen (2009) attest the Austrian organic sector a strong orientation on regionalism, which is both a purchase argument for consumers and a marketing strategy for producers. Altogether, the implementation of further support which uses the already existing structures in research, education and consultancy to transport prominent values like regional quality and health benefits could help to boost the sector's expansion again. As similar strategies have and will become relevant in Germany, too, cooperative knowledge exchange and development might create synergies to bring organic awareness forward, for example in communal feeding.

As the trade statistics for conventional agricultural products show, Germany and Austria have been important trading partners for each other. Especially from Austria's point of view, Germany is the most important target and supplying country for agricultural goods. Besides the geographical neighbourhood, the common membership in the EU and the same currency as well as the abstinence of language barriers will have amplified this network. What is more, both countries have put priorities to develop their organic sectors, and the domestic organic markets have depended on imports. Schaack et al. (2011b) show that Austria has also gained importance in being Germany's supplier of organic food, amongst others, of milk, pork and potatoes (Schaack et al., 2011b). Therefore, a stronger political and economic cooperation concerning organic agriculture and organic food could be of mutual interest for the future.

4.1.3 The Czech Republic

After the Czech Republic had joined the EU in 2004, the organic sector experienced a significant boom which lasted until 2008. Therefore, the financial support for the domestic organic production through the EU organic farming rules started, and the market for organic products was growing by up to 70 % annually. However, as a consequence of the economic crisis, the market development stagnated in 2009 and 2010, and is continuing on a low level nowadays.

One of the most prevalent issues within the evaluation of the organic sector's expansion in the Czech Republic is the fact that the developments of domestic production and market have been independent from each other in several ways. On the one hand, farmers' financial support for the conversion and maintenance of organic land has been provided by the state for two decades,

which is why the Czech Republic is amongst the European countries with the highest organic share of their utilised agricultural area today. On the other hand, this consequent support has been lacking for stakeholders along further steps of the supply chain, for education and information activities concerning consumers' interests in organic products as well as for research and consultancy focussing on the special needs of the Czech organic sector.

Václavík (2012) argues that if the Czech Republic's organic sector is aimed to establish and expand further, the government will need to have a defined strategy to substantially support this idea. Up to now, deficiencies have been existent especially in the following aspects.

Firstly, the consumption of organic products has almost not been stimulated, even though both supply and demand side need to be supported to achieve successful growth. Václavík (2012) states that 'the more money is spent on consumer awareness and information, the more the market is developed'. In general, the purchasing power of the Czech population is lower in comparison to Western European countries, and a well working economy is important to address new occasional buyers of organic products. As a consequence, the domestic organic market has not continued growing due to the economic crisis, but a small group of intensive buyers has continued shopping organic goods on the same level.

Secondly, neither organic processors and producers nor their media activities have been supported. Therefore, marketing and advertising for organic products have been on a really low level, and online promotion and public relations are developing very slowly (Václavík, 2012).

Thirdly, apart from research projects in universities, an international institutional cooperation has not been initiated. This collaboration should be desirable to adopt successful know-how instead of spending more resources. Apart from international information exchange, the country needs more skilled advisors with up-to-date knowledge to coach national stakeholders, too (Václavík, 2012).

Finally, national policy makers have not worked out a vision for organic farming in the Czech Republic yet. The national action plan could be this vision, but its goals will not be met by 2015 since it was set optimistically during a promising market situation before the economic crisis. Even though the action plan was prepared by different stakeholders, it has no management committee, and because it does not come with a budget either, the current action plan can be seen as a 'dead document' (Václavík, 2012).

Moschitz und Stolze (2010) award the Czech Republic a well organised organic farming policy network. Therein, the organic farming association PRO-BIO has played a central role for the

policy making process, and has had a strong position towards the government, in particular the Ministry of Agriculture. Altogether, 13 private and state organisations and institutions have been involved in the discourse realising a network density of 17 %, which means that less than one fifth of the possible links between these stakeholders have been put into practice. Since the private organic organisations highly contributed to the development of the sector in the beginning of the 1990s as well as to the implementation of the first action plan for organic farming in 2004, amongst others, it is shown that they were able to achieve their interest of 'bringing organic farming into the political discourse' (Moschitz and Stolze, 2010).

The focus of Czech organic production on the expansion of permanent grassland can be seen as a parallel to the development which has taken place, amongst others, in Austria during the 1990s. This is reasonable since the conversion in mountainous areas with traditional extensive cattle breeding is feasible with comparatively low efforts. In both cases, governments provided the financial support in order to motivate farmers to adapt organic methods. However, the organic production in the Czech Republic is not satisfying yet because the market highly depends on imports, especially of vegetable products, and a not negligible part of Czech farmers exports raw organic food as domestic market conditions are not satisfying. Concerning the production side, further incentives to grow arable and permanent crops should therefore be introduced to diversify the market supply of domestically produced goods, and to expand the environmental benefits that go along with organic production methods.

However, the major challenges will be in the further stimulation of the organic market's consumption side. As summarised by Živělová and Jánský (2007), the low development of distribution channels and the low market transparency as well as the consumers' information level and awareness towards organic farming and foodstuffs have been restrictions for the overall market development in the Czech Republic. As discussed above, the implementation of an ideally and financially supported governmental programme towards the Czech organic sector might probably be the key for the realisation of this issue. However, for the concrete arrangement of consumption enhancing strategies, successful methods applied in other European countries could be used as examples for own future approaches. Therein, for instance, a stronger promotion of the national organic food label, as it has been practiced in Germany, could help to create trust and to inform the broad public about request and benefits of organic agriculture. Since consumers in the neighbouring countries have tended to buy organic food mainly for reasons of their personal health, target group specific marketing activities in the Czech Republic may probably start to use

this emphasis, too. Last but not least, the systematic education of multipliers and consulters combined with research for appropriate technologies, which has been the major focus of Austria's action programme for organic farming for the last years, has been missing in the Czech Republic, too. All in all, according to Moschitz and Stolze (2010), the institutional basis to arrange and support the Czech organic sector has already been established, and a restarting positive economic development could be used as a driving force to boost the domestic organic market.

4.2 Development aspects of the organic sector in Europe

4.2.1 Policy instruments

During the last decades, European policy support for organic farming has been running through different periods. Whereas organic agriculture was initially supported in few countries, like Denmark and Germany, by single conversion payments to reduce agricultural oversupply in the 1980s, environmental aspects were coming into focus in the 1990s, which resulted in single conversion and maintenance payments as a new policy means. However, since the late 1990s, policy mixes have been applied to expand organic farming as an overall system (Sanders, 2011). Even though this policy support towards organic agriculture has not had the same relevance in all European countries, it has lead to the nowadays typically used legal, financial and communicative policy instruments which have been targeted at the organic sector.

For 20 years, minimum requirements for organic farming have been set by European legislation, and Council Regulation (EC) No. 834/2007 has become the most important law targeting the EU's organic sector. Besides, member states introduced national regulations which manage, amongst others, domestic control systems in detail, and farmers' associations can additionally define their own criteria. Because of the huge variety of national and private standards, the EU's internal trade has been hampered, and the EC has aimed to put stronger focus on common activities for a further development of the organic sector (EC, 2004).
From the community's point of view, the introduction of a new compulsory EU logo for organic products can therefore be seen as a success. On the other hand, for instance in Germany and Austria, consumers have recently put more emphasis on regionality as a quality aspect of organic products, even though markets have been depending on imports to cover the domestic demand. For the future, organic markets will need to find the balance between consumers' expectations and an efficient trade network to use expansion possibilities.

Considering the farmers' perspectives, uncertainties about support policies for organic farming and the CAP in general as well as about agri-environmental programmes have been the main barriers to develop the sector's supply side further. Additionally, agronomic problems, insecurity about the spreading of genetically modified organisms and lack of information and training have been obstacles for farmers to manage more agricultural area with organic methods (Sanders, 2011). Consequently, policy makers should put emphasis on improving farmers' certainty about economical and institutional framework conditions of the organic sector.

With the eastern European expansion of the EU, Europe's political and economic power structures have changed, and the CAP has been applied to the new member states, too. Consequently, since almost all farmers have been receiving the union's financial support, also organic farmers' expectations towards domestic conditions as well as potential competitors and markets have been influenced. On the one hand, possibilities to develop organic sectors in the eastern European countries have risen due to compensatory payments for organic farmers from EU programmes. On the other hand, the expansion could have led to the new member states' role as supplier of raw organic agricultural products for the western European states. In both cases, consequences for organic farmers have varied in each country, and could not be generalised. However, as this development has been dynamic and complex and data have been missing, the organic sector's expansion, including interactions within the entire EU, needs to be monitored continuously to adjust organic farming policy (Nieberg et al., 2007).
In order to do this, the next CAP reform is of high relevance for European organic farmers. Hence, a further development of the organic sector will require a strong priority of organic agriculture in the CAP for the period from 2014 to 2020, especially concerning its second pillar and the financial and political support of rural development programmes (IFOAM EU Group, 2012). Besides, a greening of the standards in the CAP's first pillar has been under discussion which needs to be improved further to fulfil the targeted environmental benefits (Dobrzyńska, 2012; IFOAM EU Group, 2012).

For the stimulation of the organic market's demand side, consumers' trust in organic products is of highest relevance since 'the higher the organic food consumption, the higher the consumers' trust in organic food' (Stolz et al., 2011). In particular, consumers rely on labels of organic farmers' associations, specific organic food shops and organic brands, and trust is confirmed by positive media reports, product quality and good taste as well as personal contact to organic farmers (Stolz et al., 2011). Therefore, the products' trustworthiness and the creation and establishment

of trust in organic products and production methods should be an important issue for policy makers and stakeholders to develop the sector further.

So far, difficulties in the establishment of organic farming policies have been existing because of the 'multiplicity of organic farming policy goals' and since the agricultural concept 'does not belong to government to modify and adapt at will' (Stolze and Lampkin, 2009). However, the sector's growth would not have been possible without political support, and its future development will also highly depend on the political intentions and applied strategies (Zanoli et al., 2012). In summary, the development of organic farming can be supported by a broad and well-balanced mix of legal, financial and communicative policy instruments which are targeted at all levels of the supply chain. Further, both the provision of the necessary human and financial resources as well as the continuous communication and the programme's evaluation have to be assured. To set up an appropriate support strategy, all relevant stakeholders should participate in decision making, and the organic sector's development should be seen as a long-term process (Sanders, 2011; Schmid et al., 2009). Therein, a successful, integrative approach towards organic farming can be action plans, which have been introduced in many European countries on a national or regional level (Gonzálvez et al., 2011). Schmid et al. (2009) give an overview about 'golden rules' for organic farming action plans and conclude that a new, updated European action plan on organic agriculture is necessary to achieve the union's long-term environment and sustainability goals.

4.2.2 Organic agriculture in Switzerland

In the following, an excursus shows some aspects about organic agriculture in Switzerland, which is a neighbouring country of Germany and Austria with comparable living conditions as the countries presented above. Since Switzerland has not been a member of the EU, it can be interesting to compare the Swiss organic sector's development and applied policy means with those in Germany, Austria and the Czech Republic. In Switzerland, the per-capita consumption of organic products was the highest in Europe in 2010, and the share of organic agricultural land was amongst the highest, too.

Organic production methods had been introduced in Switzerland in the first half of the 20th century, and the organic farmers' organisations' umbrella association 'Bio Suisse' was already founded in 1981. During the last two decades, the sector experienced its highest growth rates on

the production as well as the demand side, and consumers' market demand as well as imports are expected to continue rising (Bio Suisse, 2012; Kilcher, 2011; Kilcher et al., 2011).

On a national level, the Swiss Organic Farming Ordinance has provided the sector's legislation since 1998, and farmers have been supported through a financial programme for agriculture. However, other typical political means like an action plan or a national label for organic farming and products have not been used in Switzerland (Gonzálvez et al., 2011; Kilcher, 2011). Rather, the sector has been formed by the private business and the activities of farmers' organisations. Apart from this, international organisations and research institutes for organic agriculture have their head offices in Switzerland underlining the country's importance as one of the pioneering countries for research on organic farming (Kilcher, 2011).

Overall, the absence of genetically modified organisms has become the most prevalent topic in Swiss agriculture (Gottwald and Boergen, 2009). However, integrated production has traditionally been widespread in Switzerland, too, so that the alpine country's organic sector will have to maintain its position for an ongoing sustainable development. In conclusion, the promising development of organic agriculture in Switzerland has shown that ways which are different from the ones in the analysed EU member states can also expand the organic sector successfully.

4.3 Relevance of research and availability of statistical data

For the previous development of organic agriculture both in Europe and beyond, research and information exchange have played an important role for the communication of organic methods and benefits as well as for the continuous improvement of the applied technologies. Accordingly, further scientific work and communicative tools will be needed to contribute to the establishment and expansion of the organic sector in Europe from now on. That is why, some projects which could be interesting points of contact for further papers are being exemplarily presented in the following.

In the European Action Plan for Organic Food and Farming from 2004, one of the main goals was 'an information-led development of the organic food market' which should have been realised, amongst others, by the improvement of 'the availability of production, supply and demand statistics as policy and marketing tools' as well as the establishment and maintenance of an Internet database which provides 'more transparency on different standards' (EC, 2004). What is

more, the obligation of the member states to provide statistical and other information annually to the EC by using the computer system Eurostat is fixed in articles 93 and 94 of Commission Regulation (EC) 889/2008. However, statistical information in Eurostat are incomplete, for instance, data about the certified organic crop area in the European countries, wherein Germany and Austria, amongst others, have not provided their information at all (Eurostat, 2012). In consequence, scientific work comparing national markets and standards will require more time and language skills since these information have mostly been available in national databases only. Furthermore, other data describing domestic and international trade as well as production volumes and prices at different stages of the supply chain have completely been missing (EC, 2010; Zanoli et al., 2012). Therefore, initiative projects have been launched to overcome this lack of information.

In February 2012, the project 'Data network for better European organic market information' (OrganicDataNetwork) (see FiBL, 2012), which will last until 2014, was started. It is expected to improve the availability of market information significantly, and hence to increase the market's transparency. To realise these aims, the project will be coordinating stakeholders, using already existing structures and stimulating the creation of new structures to collect and process data of Europe's organic food market. Finally, the established network shall be continued after the end of the project, and meet the 'needs of policy makers and actors involved in organic markets' (Willer, 2012).

Since a considerable amount of statistical data describing the European organic sector has not been available yet, new research has become necessary to collect these information. Giving an example, Schaack et al. (2011b) analysed the organic food imports to Germany, whose domestic organic market highly depends on imports from abroad. Therefore, the authors both identified supplying countries and estimated the current and expected import volume by calculating production amounts, interviewing import companies as well as analysing data about national household consumption and Germany's external trade. However, various data could just be estimated, and the project methods need to be continued, improved and updated regularly to achieve a realistic availability of organic import data. Hence, this paper can be seen as a first scientific basis to coordinate future import and production amounts of Germany and its trading partners, and to learn about its potential demand development (Schaack et al., 2011b).

For the support of transnational research, the European project ‘Core Organic’ was initiated in 2004, and its work is nowadays continued in the follow-up project ‘Core Organic II’. Therein, the main aims are to increase information exchange and integration by establishing a common online archive (www.orgprints.org) and to coordinate existing research. Furthermore, best practice methods and needs for further research have been worked out together (Jespersen, 2009). Today, 26 partners from 21 European countries including Germany, Austria and the Czech Republic are organised in the network doing research in currently 11 projects (ICROFS, 2012).

All in all, research on organic farming and in the organic food sector is a means to generate knowledge and information which is applicable in practice and consultancy, and contributes to the sector’s quantitative development while maintaining and further improving its high quality standards (BLE, 2012b).

4.4 Organic production – Delivery of public goods

Apart from economic issues targeted in the organic sector, the organic production system also delivers public goods because it contributes to the protection of the environment and animal welfare, and to rural development (§ (1) Council Regulation (EC) No 834/2007). Even though the support of organic farming, for instance in the Czech Republic, might have had little market effects by now and the sector’s current situation shows an obvious disproportion of organic farming in agricultural area and its market share, the high share of permanent grassland areas goes along with environmental benefits through landscape maintenance in less favourable areas (Brožová, 2005; MZe, 2011; Zagata, 2007).

Niggli et al. (2010) summarise that the support of organic farming helps minimising overall cost for farm support while environmental benefits can be increased at the same time because the organic farming system is able to meet several sustainability goals at the same time. Therefore, as consistent policy measures towards organic farming are able to unify environmental effectiveness and economic efficiency, the tailored support of organic agriculture should be part within the EU’s food security, biodiversity and climate change policies (Niggli et al., 2010).

5 Conclusions

In conclusion, this paper has shown that the development of the organic sectors in Germany, Austria and the Czech Republic has been influenced by both the political support for organic agriculture and the general economic growth. In each country, a mix of legal, financial and communicative policy instruments has been applied, whereas rural development programmes have been an important source for the financial support of organic agriculture.

In Austria and Germany, the traditional establishment of farmers' associations has helped to organise the sectors on a private level. After national subsidies made a substantial domestic production expansion possible, the countries nowadays depend on imports to cover their domestic demand for organic foods, and have to deal with a further sustainable organic market growth. In the Czech Republic, consumption stimulation has been lacking, which is why the potential to extend communicative policy instruments is high and should be utilised consequently.

For a promising continuation of the organic sectors' development in these countries, appropriate policies have to address the market's supply as well as its demand side. Apart from national policies, the international cooperation between Germany, Austria and the Czech Republic has been on a comparatively low level. Hence, institutional networks between these countries could possibly support the process of policy making, and the European trade with organic products could be intensified. However, national and international interests targeted at the organic sector have not always been consistent with each other since, amongst others, consumers tend to prefer regional organic products on the one hand, but the sector could on the other hand grow faster by producing in states with lower production costs. Nevertheless, policy makers will have to evaluate and develop current instruments further, and research on organic agriculture and related economies has been providing important information about the sector's dynamics. Accordingly, well-targeted support, for instance for a broader implementation of organic food in communal feeding, could help to promote the organic sectors' development in Germany, Austria, the Czech Republic and other countries. Besides market aspects, the organic farming system delivers numerous public goods, for which reason an overall strong political support is absolutely desirable.

6 Literature

Agrarmarkt Austria (2011a). Biozeichenerklärung. http://www.ama-marketing.at/produktgruppen/bio/biozeichenerklaerung/ (29.04.2012)

Agrarmarkt Austria (2011b). Bio-Aktionstage 2011 ein voller Erfolg. http://www.bioinfo.at/jart/prj3/bioinfo/main.jart?rel=de&content-id=1321965647542 (29.04.2012)

Agrarmarkt Austria (2012). Bio hat sich in Österreich im Alltag fest etabliert. Österreichische Bio-Spitze bei der Bio-Fach in Nürnberg. http://www.ama-marketing.at/produktgruppen/bio/news-archiv/details/?no_cache=1&tx_ttnews[tt_news]=515&tx_ttnews[backPid]=1003 (16.04.2012)

Agrarmarkt Informations-Gesellschaft mbH (2012a). Bio-Strukturdaten 2010 – Bodennutzung und Tierhaltung. http://www.ami-informiert.de/fileadmin/redaktion/bio_daten/strukturdaten/Bodennutzung_und_Tierhaltung_2010_PDF.pdf (22.02.2012)

Agrarmarkt Informations-Gesellschaft mbH (2012b). Verkaufserlöse 2010 deutlich angestiegen. http://www.ami-informiert.de/fileadmin/redaktion/bio_daten/strukturdaten/Verkaufserloese_2010_bio_und_konventionell_PDF.pdf (07.05.2012)

Bio Austria (2006). Förderungen. http://www.bio-austria.at/biobauern/umstellung/foerderungen (29.04.2012)

Bio Austria (2011). Bio-Umsätze in Österreich 2010. www.bio-austria.at/content/download/31674/227758/file/Umsatz_%C3%96sterreich_gesamt_10.pdf (22.02.2012)

Bio Austria (2012a). Jahresbericht 2011. Linz

Bio Austria (2012b). Marktdaten von Bio Austria. http://www.bio-austria.at/partner/markt__1/marktdaten_von_bio_austria/%28n%29/22809 (06.07.2012)

Bio Suisse (2012). Bio Suisse. Bringt den Geschmack zurück. http://www.bio-suisse.ch/ (04.07.2012)

Brožová I (2005). Organic agriculture as one of aspects of multifunctional agriculture. Agricultural Economics Czech 51(2), 51-56

Brožová I (2011). The economic performance analysis of organic farms in the Czech Republic. Agricultural Economics Czech 57(5), 240-246

Buder F, Hamm U (2011). Determinanten der Nachfrage ökologischer Lebensmittel. In: Leithold G, Becker K, Brock C, Fischinger S, Spiegel AK, Spory K, Wilbois KP, Williges U (Hrsg) (2011). Es geht ums Ganze: Forschen im Dialog von Wissenschaft und Praxis. Beiträge zur

11. Wissenschaftstagung Ökologischer Landbau, Justus-Liebig-Universität Gießen, 15.-18. März 2011. Dr. Köster, Berlin

Bund Ökologische Lebensmittelwirtschaft (2012). Zahlen. Daten. Fakten. Die Bio-Branche 2012. Berlin

Bundesanstalt für Landwirtschaft und Ernährung [Federal Agency for Agriculture and Nutrition of the Federal Republic of Germany] (2012a). Ökolandbau in Zahlen. http://www.oekolandbau.de/service/oekolandbau-in-zahlen/ (04.05.2012)

Bundesanstalt für Landwirtschaft und Ernährung [Federal Agency for Agriculture and Nutrition of the Federal Republic of Germany] (2012b). Bundesprogramm Ökologischer Landbau und andere Formen nachhaltiger Landwirtschaft. http://www.bundesprogramm.de/ (06.05.2012)

Bundesanstalt für Landwirtschaft und Ernährung [Federal Agency for Agriculture and Nutrition of the Federal Republic of Germany] (2012c). Bio-Siegel. http://www.bio-siegel.de/ (12.07.2012)

Bundesanstalt für Landwirtschaft und Ernährung [Federal Agency for Agriculture and Nutrition of the Federal Republic of Germany] (2012d). Demonstrationsbetriebe Ökologischer Landbau. http://www.oekolandbau.de/verbraucher/demonstrationsbetriebe/ (06.05.2012)

Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz [Federal Ministry of Nutrition, Agriculture and Consumer Protection of the Federal Republic of Germany] (2012a). Statistisches Jahrbuch über Ernährung, Landwirtschaft und Forsten 2011. Landwirtschaftverlag, Münster-Hiltrup

Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz [Federal Ministry of Nutrition, Agriculture and Consumer Protection of the Federal Republic of Germany] (2012b). Ökologischer Landbau in Deutschland. http://www.bmelv.de/SharedDocs/Standardartikel/Landwirtschaft/Oekolandbau/OekologischerLandbauDeutschland.html (04.05.2012)

Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz [Federal Ministry of Nutrition, Agriculture and Consumer Protection of the Federal Republic of Germany] (2012c). Ökolandbau: Strukturdaten 2010. http://www.bmelv.de/SharedDocs/Downloads/Landwirtschaft/OekologischerLandbau/Strukturdaten-2010.pdf?__blob=publicationFile (04.05.2012)

Bundesministerium für Gesundheit [Federal Ministry of Health of the Republic of Austria] (2012). Allgemeine Informationen zum Österreichischen Lebensmittelbuch. http://bmg.gv.at/home/Schwerpunkte/VerbraucherInnengesundheit/Lebensmittel/Oesterreichisches_Lebensmittelbuch/Allgemeine_Informationen_zum_Oesterreichischen_Lebensmittelbuch (26.04.2012)

Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft [Federal Ministry of Agriculture, Forestry, Environment and Water Management of the Republic of Austria] (2008). Aktionsprogramm Biologische Landwirtschaft 2008-2010. www.lebensministerium.at/dms/lmat/land/bio-lw/programme/Bio_Aktionsprogramme/DAS-BIO-AKTIONSPROGRAMM-2008-2013/DAS%20BIO-AKTIONSPROGRAMM%202008-2010.pdf (16.04.2012)

Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft [Federal Ministry of Agriculture, Forestry, Environment and Water Management of the Republic of Austria] (2011). Grüner Bericht 2011. Bericht über die Situation der österreichischen Land- und Forstwirtschaft. Vienna

Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft [Federal Ministry of Agriculture, Forestry, Environment and Water Management of the Republic of Austria] (2012a). Das Bio-Aktionsprogramm des Lebensministeriums. http://www.lebensministerium.at/land/bio-lw/programme/Bio_Aktionsprogramme.html (16.04.2012)

Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft [Federal Ministry of Agriculture, Forestry, Environment and Water Management of the Republic of Austria] (2012b). ÖPUL-Übersicht. http://www.lebensministerium.at/land/laendl_entwicklung/agrar-programm/OEPUL-Uebersicht.html (29.04.2012)

Bundesprogramm Ökologischer Landbau und andere Formen nachhaltiger Landwirtschaft [Federal scheme for organic farming and other forms of sustainable agriculture] (2012). Ökobarometer 2012. http://www.oekolandbau.de/fileadmin/redaktion/dokumente/journalisten/Oekobarometer2012_Sheets_BA.pdf (18.05.2012)

Dobrzyńska N (2012). Will the reformed CAP respond to the challenge of sustainable development of natural resources and climate change? Conference ‘The new CAP: The right path to sustainable farming? Copenhagen, 2nd March 2012

Doležalová H, Pícha K, Navrátil J (2009). Analysis of the organic food marketing – chain store companies (South Bohemia). Agricultural Economics Czech 55(9), 446-458

European Commission (2004). European Action Plan for Organic Food and Farming. COM(2004)415 Final. Commission of the European Communities, Brussels

European Commission (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. Official Journal of the European Union L 189/1, 20.07.2007, Brussels

European Commission (2008). Council 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. Official Journal of the European Union L 250/1, 18.09.2008, Brussels

European Commission (2010). An analysis of the EU organic sector. EC DG Agriculture and Rural Development, Brussels

European Commission (2012). The Common Agricultural Policy after 2013. http://ec.europa.eu/agriculture/cap-post-2013/index_en.htm (10.03.2012)

Eurostat (2012). Certified organic crop area [food_in_porg1]. http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=food_in_porg1&lang=en (05.06.2012)

Forschungsinstitut für Biologischen Landbau [Research Institute of Organic Agriculture] (2010). Austria: country report. http://www.organic-europe.net/country-info-austria-report.html?&L=0 (25.03.2012)

Forschungsinstitut für Biologischen Landbau [Research Institute of Organic Agriculture] (2012). OrganicDataNetwork. http://datanetwork.organic-research.org/ (05.06.2012)

Gonzálvez V, Schmid O, Willer H (2011). Organic Action Plans in Europe in 2010. In: Willer H, Kilcher L (eds) (2011). The World of Organic Agriculture. Statistics and Emerging Trends 2011. FiBL, Frick, and IFOAM, Bonn

Gottwald FT, Boergen I (2009). Wachsen mit den Werten. Wertewandel im Ökolandbau – ein Ländervergleich. In: Mayer J, Alföldi T, Leiber F, Dubois D, Fried P, Heckendorn F, Hillmann E, Klocke P, Lüscher A, Riedel S, Stolze M, Strasser F, van der Heijden M, Willer H (Hrsg) (2009). Werte – Wege – Wirkungen: Biolandbau im Spannungsfeld zwischen Ernährungssicherung, Markt und Klimawandel. Beiträge zur 10. Wissenschaftstagung Ökologischer Landbau, ETH Zürich, 11.-13. Februar 2009

Groß D (2004). Mit Bauern sind „20 Prozent Bio“ so nicht zu machen. Zur Situation und Perspektive des Ökolandbaus aus bäuerlicher Sicht. In: AgrarBündnis, AG Land- und Regionalentwicklung, Universität Gesamthochschule Kassel (Hrsg) (2004). Der Kritische Agrarbericht. ABL, Hamm, 138-142

Häring AM, Vairo D, Dabbert S, Zanoli R (2009). Organic farming policy deveopment in the EU: What can multi-stakeholder processes contribute? Food Policy 34, 265-272

Hrabalová A (2009). Organic farming development in the Czech Republic. http://www.google.com/url?sa=t&rct=j&q=hrabalova%20organic%20farming%20development%20in%20the%20czech%20republic&source=web&cd=10&ved=0CG0QFjAJ&url=http%3A%2F%2Fsummerschool.mendelu.cz%2Fdok_server%2Fslozka.pl%3Fid%3D33514%3Bdow

nload%3D46399&ei=GihnT4mtMcmEOpr2gf4H&usg=AFQjCNHBBQPnv7M2p04wH6itjkfYfuRQzA&cad=rja (19.03.2012)

Hrabalová A (ed) (2011a). Ročenka ekologické zemědělství v České republice 2010. Ústav zemědělské ekonomiky a informací, Prague

Hrabalová A (2011b). The Czech organic action plan – best practices and lessons learnt. http://www.biokultura.org/images/hirek/Andrea_Hrabalova.pdf (19.03.2012)

Hrabalová A, Dittrichová M (2012). Statistická šetření ekologického zemědělství – Zpráva o trhu s biopotravinami v ČR. Ústav zemědělské ekonomiky a informací, Prague

Hrabalová A, Zander K (2006). Organic beef farming in the Czech Republic: structure, development and economic performance. Agricultural Economics Czech 52(2), 89-100

International Centre for Research in Organic Food Systems (2012). Core Organic II. http://www.coreorganic2.org/ (06.06.2012)

International Federation of Organic Agriculture Movements EU Group (2012). Reaction to the CAP Legislative Proposals 2014-2020. Brussels

Jánský J, Živělová I (2007). Subsidies for the organic agriculture. Agricultural Economics Czech 53(9), 393-402

Jespersen LM (2009). Core Organic. Coordination of European Transnational Research in Organic Food and Farming. Final Project Report. http://www.coreorganic.org/library/pub/core_i_final_scientific_report.pdf (06.06.2012)

Johann Heinrich von Thünen-Institut (2012). Analyse der wirtschaftlichen Lage ökologisch wirtschaftender Betriebe. http://www.vti.bund.de/no_cache/de/startseite/institute/bw/projekte/betriebswirtschaftliche-analysen-oekologischer-landbau/analyse-der-wirtschaftlichen-lage-oekologisch-wirtschaftender-betriebe.html (06.05.2012)

Kilcher L (2011). Switzerland: Country Report. In: Willer H, Kilcher L (eds) (2011). The World of Organic Agriculture. Statistics and Emerging Trends 2011. FiBL, Frick, and IFOAM, Bonn

Kilcher L, Willer H, Huber B, Frieden C, Schmutz R, Schmid O (2011). The Organic Market in Europe. 3rd ed, SIPPO, Zürich and FiBL, Frick

Ministerstvo zemědělství [Ministry of Agriculture of the Czech Republic] (2011). Action Plan for Organic Farming 2011-2015. Prague

Ministerstvo zemědělství [Ministry of Agriculture of the Czech Republic] (2012a). Základní statistické údaje ekologického zemědělství k 31.12.2011. http://eagri.cz/public/web/file/148890/statistika_zakladni_31_12_2011.doc (27.03.2012)

Ministerstvo zemědělství [Ministry of Agriculture of the Czech Republic] (2012b). Loga pro ekologické zemědělství. http://eagri.cz/public/web/mze/zemedelstvi/ekologicke-zemedelstvi/loga-a-znaceni/ (15.04.2012)

Moschitz H, Stolze M (2010). The influence of policy networks on policy output. A comparison of organic farming policy in the Czech Republic and Poland. Food Policy 35, 247-255

National Audit Office (2010). Financial Management in the European Union. London

Nieberg H, Offermann F, Zander K (2007). Organic Farming in a Changing Policy Environment: Impacts of Support Payments, EU-Enlargement and Luxembourg Reform. Organic Farming in Europe: Economics and Policy, Volume 13, Stuttgart-Hohenheim

Niggli U, Schader C, Stolze M (2010). Organic farming – an efficient and integrated system approach responding to pressing challenges. In: International Federation of Organic Agriculture Movements EU Group (2010). Organic Food and Farming. A system approach to meet the sustainability challenge. Brussels

Öko-Landbaugesetz vom 7. Dezember 2008 (BGBl. I S. 2358), geändert durch Art. 33 des Gesetzes vom 9. Dezember 2010 (BGBl. I S. 1934) [Act of 7 December 2008 on organic agriculture]

Öko-Kennzeichengesetz vom 20. Januar 2009 (BGBl. I S. 78), geändert durch Art. 29 des Gesetzes vom 9. Dezember 2010 (BGBl. I S. 1934) [Act of 20 January 2009 on organic labelling]

Öko-Kennzeichenverordnung vom 6. Februar 2002 (BGBl. I S. 589), geändert durch Art. 1 der Verordnung vom 30. November 2005 (BGBl. I S. 3384) [Regulation of 6 February 2002 on organic labelling]

Österreichisches Lebensmittelbuch IV. Auflage vom 19.01.2012. Codexkapitel A 8. Landwirtschaftliche Produkte aus biologischem Landbau und daraus hergestellte Folgeprodukte. http://portal.wko.at/wk/dok_detail_file.wk?angid=1&docid=326264&stid=170432 (26.03.2012)

Sanders J (2011). Developing the organic sector. Best practices from the EU. AUC and EC Workshop on Organic Farming, 12 July 2011, Brussels

Schaack D, Willer H, Padel S (2011a). The Organic Market in Europe. In: Willer H, Kilcher L (eds) (2011). The World of Organic Agriculture. Statistics and Emerging Trends 2011. FiBL, Frick, and IFOAM, Bonn

Schaack D, Rampold C, Willer H, Rippin M (2011b). Analyse der Entwicklung des ausländischen Angebots bei Bioprodukten mit Relevanz für den deutschen Biomarkt. Agrarmarkt Informations-Gesellschaft mbH, Bonn

Schaack D, Lernoud J, Padel S, Willer H (2012). The Organic Market in Europe. In: Willer H, Kilcher L (eds) (2012). The World of Organic Agriculture. Statistics and Emerging Trends 2012. FiBL, Frick, and IFOAM, Bonn

Schmid O, Lampkin N, Dabbert S, Zanoli R, Michelsen J, Gonzalvez V (2008). European Action Plan of Organic Food and Farming. Development of criteria and procedures for the evaluation of the EU Action Plan for Organic Agriculture. Final project synthesis report. FiBL, Frick

Stolz H, Stolze M, Schneider F, Hermanowski R, Baumgart L, Morgner M, Kriege-Steffen A, Boland H (2011). Wie lässt sich das Konsumentenvertrauen in Bio-Lebensmittel erhöhen? In: Leithold G, Becker K, Brock C, Fischinger S, Spiegel AK, Spory K, Wilbois KP, Williges U (Hrsg) (2011). Es geht ums Ganze: Forschen im Dialog von Wissenschaft und Praxis. Beiträge zur 11. Wissenschaftstagung Ökologischer Landbau, Justus-Liebig-Universität Gießen, 15.-18. März 2011

Stolze M, Lampkin N (2009). Policy for organic farming: Rationale and concepts. Food Policy 34, 237-244

United States Department of Agriculture (2011). Global Agriculture Information Network. Czech Republic organic. http://www.nutfruit.org/UserFiles/Image/pdf/czechrepublic_organic_110510.pdf (20.03.2012)

Václavík T (2012). Interview about the development of the organic sector in the Czech Republic, possibilities of the application of experience from abroad and cooperation with the media. Personal communication, 11 May 2012

Willer H (2012). Organic Agriculture in Europe: Overview. In: Willer H, Kilcher L (eds) (2012). The World of Organic Agriculture. Statistics and Emerging Trends 2012. FiBL, Frick, and IFOAM, Bonn

Willer H, Kilcher L (eds) (2011). The World of Organic Agriculture. Statistics and Emerging Trends 2011. FiBL, Frick, and IFOAM, Bonn

Willer H, Kilcher L (eds) (2012). The World of Organic Agriculture. Statistics and Emerging Trends 2012. FiBL, Frick, and IFOAM, Bonn

Zagata L (2007). Bio cash-cow? Context and content of Czech organic farming. Agricultural Economics Czech 53(1), 45-53

Zagata L (2009). The analysis of the current forms of organic chicken husbandry in the Czech Republic and their social consequences. Agricultural Economics Czech 55(6), 271-283

Zákon č. 344/2011 Sb. ze dne 26. října 2011, kterým se mění zákon č. 242/2000 Sb., o ekologickém zemědělství a o změně zákona č. 368/1992 Sb., o správních poplatcích, ve znění pozdějších předpisů, ve znění pozdějších předpisů, a zákon č. 634/2004 Sb., o správních

poplatcích, ve znění pozdějších předpisů [Act No. 344/2011 Coll. of 21 October 2011 on ecological agriculture]

Zámková M, Blašková V (2012). The popularity of organic products among young people in the Czech Republic. Chronicles of the Mendel University of Agriculture and Forestry Brno 60(2), 475-480

Zanoli R, Gambelli D, Vairo D (2012). Scenarios of the organic food market in Europe. Food Policy 37, 41-57

Živělová I, Jánský J, Novák P (2003). Economic evaluation of cattle management in the system of organic farming. Agricultural Economics Czech 49(10), 469-475

Živělová I, Jánský J (2007). The conditions for organic market development. Agricultural Economics Czech 53(9), 403-410

Annex: Organic labels

Label 1: European Union (MZe, 2012b)

Label 2: Germany (BLE, 2012c)

Label 3a: Austria with indication of origin and 3b: Austria without indication of origin (AMA, 2011a)

Label 4: The Czech Republic (MZe, 2012b)

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Gießen, 18 July 2012