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**THE CONTRIBUTION OF THE AGRI-FOOD SECTOR TO  
SUSTAINABLE DEVELOPMENT IN ITALY**

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**Abstract:** *The increase in world population, the risk of depletion of natural resources needed for production, the intensification of climate change caused by excessive anthropogenic pressure on the environment, ask for urgent changes in the choice of energy sources, the management of natural resource, production technologies, consumption patterns and, more generally, local development patterns. A sustainable development based on bio-economic strategies is closely related to agribusiness and its diversification, rural and local development and the limitations and opportunities inherent in the environmental and social pillars of sustainability. The aim of this paper is to provide a picture of the main opportunities through which the Italian agro-food sector may contribute to the sustainability of local development patterns. After a brief overview of the Italian agro-food system, the paper discusses how to reconcile it with sustainable development, and considers aspects such as the environment, social development and multifunctional agriculture.*

**Key-words:** sustainable development, agro-food sector, Italy

**A CONTRIBUIÇÃO DO SETOR AGROALIMENTAR NO DESENVOLVIMENTO  
SUSTENTÁVEL EM ITÁLIA**

**Resumo:** *O aumento da população mundial, o risco de esgotamento dos recursos naturais necessários para a produção, a intensificação da mudança climática causada pela excessiva pressão antrópica no meio ambiente, exigem mudanças urgentes que atuem na escolha das fontes energéticas, na gestão dos recursos naturais, nas tecnologias de produção, nos estilos de consumo e, mais em geral, nos modelos de desenvolvimento local. Um desenvolvimento sustentável baseado em estratégias bioeconômicas está intimamente associado ao agrobusiness e à sua diversificação, ao desenvolvimento rural e local, aos limites e às oportunidades provenientes dos pilares ambientais e sociais da sustentabilidade. O objetivo deste estudo é o de fornecer um quadro das principais oportunidades através das quais o setor agroalimentar pode contribuir para a sustentabilidade dos modelos de desenvolvimento local em Itália. Após uma breve panorâmica do sistema agroalimentar italiano, o estudo analisa as oportunidades para conciliar o setor agroalimentar e o desenvolvimento sustentável, enfrentando as questões ambientais, o desenvolvimento social, a multifuncionalidade da agricultura.*

**Palavras-chave:** desenvolvimento sustentável, setor agroalimentar

**Local development and the agri-food sector in a bio-economic framework**

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natural resource, production technologies, consumption patterns and, more generally, local development patterns.

Sustainable development gained a renewed momentum in 2015, thanks to many international initiatives, events, and declarations.

2015 was the year in which the Millennium Development Goals agreed at the World Summit in the year 2000 had to be reached. In 2015, these goals were redefined and reshaped in the 2030 Agenda for Sustainable Development (SDGs), through which the international community established the future global framework for poverty eradication and sustainable development. The post-2015 Agenda for sustainable development sets 17 SDGs, among which Goal 2 is intended to “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”.

The Milan Charter signed at the conclusion of Expo Milano 2015 sets principles and practices to eradicate hunger by 2030 and support the Sustainable Development Goals.

The Third World Forum of Local Economic Development celebrated in Turin in 2015 highlighted the potential contribution of Local Economic Development (LED), as a strategic and operational approach to meet the challenges linked to the SDGs.

Local development issues are strictly connected to the increase in the global average temperature discussed in the 2015 Paris Climate Change Conference, whose final Agreement aims “to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty” and recognizes “the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change”.

Finally, 2015 was also the first ever European Year for Development (EYD), a year that “is both a new beginning and a deadline”. EYD was intended to showcase the European Union's external action and role in the world for the eradication of poverty and the support of sustainable development along with the newly-adopted 2030 Agenda.

Moreover, the new European Programme 2014-2020 proposes an approach aimed at territorial cohesion and integrated and sustainable local development. The Europe 2020 Strategy identifies bio-economy strategies as effective tools to support economic growth, reduce fossil-fuel dependence and promote, at the same time, environmental and economic sustainability. Bio-economy strategies should counter some of the shortcomings of present economic growth models by focusing, first of all, on innovative production processes and chains and their implications on territorial development and the efficient management of renewable natural resources.

Territorial development, as seen through bio-economy strategies based on a circular approach, is strictly connected to agribusiness and rural and local development, and represents an opportunity especially for those areas usually regarded as less developed.

The aim of this paper is to provide a picture of the main characteristics of the Italian agro-food sector and of the opportunities through which may contribute to the sustainability of local development patterns. To better understand these opportunities, the paper provides a brief overview of the Italian agro-food system. The paper then discusses how to reconcile the agro-food system and sustainable development, and considers aspects such as the environment, organic farming, farm tourism, short-chain production, and finally, social farming. Limitations of space made it impossible to consider other aspects. These aspects also include the non-food sector - whose importance is paramount for the local sustainable development - and its connection with the food sector.

### **A brief overview of the Italian agro-food system**

From the beginning of the economic crisis till the end of 2014, Italy lost about 9,3 GDP points. The GDP growth in Italy is expected to be 0,6% in 2015 and 1.3% in 2016: a certainly too modest growth rate if compared to what would be necessary for a real economic recovery. In the present economic context, if Italy wants to develop an economic system able to produce widespread wellbeing at territorial level, it should not neglect the contribution provided by the agricultural sector.

Agriculture is the core of the agri-business sector, which accounts for 15% of national wealth. Moreover, agriculture and agro-food economy are the production activities that more than others shape the characteristics of our national territory, consisting of rural areas (92%), mountains and hills (77%). 57% of this territory is destined to agricultural and forestry activities, very important to guarantee environmental protection.

The Italian agro-food economy is traditionally based on small and medium-size enterprises with strong territorial links. The current globalised uniformity of products sold on markets worldwide and a price competition forcedly based on globalised production costs have a heavy negative impact on this economy. The table below shows the main aggregates of the Italian agro-food system (in million euro), for 2013.

**Table 1 - The main aggregates of the Italian agro-food system (in million euro), 2013**

Aggregates	Value
Added value of agriculture, forestry and fishery	30.045
Intermediate consumption of agriculture, forestry and fishery	25.029
Trade	105.226
Added value of food and beverage industry	26.609
Restaurant value added services	43.972
Indirect taxes in the agribusiness	13.549
Production subsidies	5.323
Agro-industrial investments	15.903

Source: INEA, 2014.

If compared to the main European countries, the weight of our national food industry is among the lowest in terms of value added and number of employees. Nevertheless, the food industry is a key strength of the national economy if we consider the total trade of the country. In relation to the total agro-food balance, the primary sector accounts for 32% of all imports compared to 63% for the industry, while the proportion of exports is, respectively, 15% and 52%. With regard to supply markets, among South American countries, Brazil has become the first national supplier (INEA, 2014).

According to the latest data of the National Statistical Institute (ISTAT, 2015), in 2013 the number of farms decreased by 9.2% compared to the 2010 Agricultural Census. The total area of farms decreased (by 3.3%), although to a lesser extent than the decrease in the number of farming enterprises. As a result, the surface average size increased (rising from 7.9 to 8.4 acres nationwide), while presenting a strong territorial heterogeneity among the Northwest (15.5 hectares), the Northeast (10.5 hectares), the Centre (9.1 acres), the South (5.4 acres) and Islands (9.8 acres). However, many small farms ceased their activities, although small-size farms still strongly represent the structural characteristic of the Italian agricultural system.

In addition, the number of employees is diminishing (-8.1%), especially as concerns the number of family members employed in family businesses (-13.0%), as many small farms ceased their activities. However, the distribution of agricultural holdings by type confirms that family farming remains a typical character of the Italian agriculture: family farms are 1.4 million (92.9% of the agricultural farms) and hold 80.3% of the utilised agricultural area.

In Italy, there is a strong territorial differentiation of agricultural food systems, which are characterized by different forms of integration with the urban and the industrial contexts and with the general economic and social development of the country. To provide a framework for this differentiation, one must consider the taxonomy of rural and urban areas (Table 2) set in the 2014-2020 Italian Rural Development Plans, which identifies four areas (INEA, 2014): a) Urban and peri-urban areas, b) Specialised Intensive Agriculture Rural areas, c) Intermediate Rural Areas, d) Rural areas with Comprehensive Development Problems.

**Table 2 - The taxonomy of urban-rural areas in Italy**

Indicator	Municipalities	Surface (sq.km.)	Population	Pop. density	Rural surface	Protected areas (%)	Employment in the agro-food sector (%)
Urban and peri-urban areas	193	12074	17608238	1458	60.5	7.2	20.3
Specialised intensive agriculture rural areas	1803	51632	15815501	306	80.5	3.8	31.9
Intermediate rural areas	3139	100452	17760436	177	84.2	6.9	33.1
Rural areas with comprehensive development problems	2957	137916	8249569	60	78.2	15.6	14.6
Italy	8092	302073	59433744	197	79.9	10.4	100.0

Source: INEA, 2014.

In urban and peri-urban areas, that represent 30% of the national population and only 4% of land areas, agriculture plays a reduced productive function, limiting itself to the occupation of territories around large urban centres, which, in turn, represent consumer markets potentially capable of absorbing high-quality agro-food productions. In these areas, food industrial activities are concentrated, employing 20% of agro-industrial workers in the country.

Rural areas with intensive and specialised agriculture represent the core of the national agro-industrial system. These areas are mainly located in the Middle-North of Italy and are densely populated. They present a strong specialisation that creates territorial agro-industrial chains and, in certain cases, agro-food districts. These areas are in the more productive plains and hilly areas, where 27% of the Italian population live. Agro-food workers in these areas are approximately 134 thousand, equal to 32% of the total.

Intermediate rural areas account for 30% of the Italian population and 33% of land areas. These areas cover 35% of the national forestry surface.

Rural areas with development problems are the least densely populated areas of the country (60 pop./sq.km.). They are concentrated mainly in the Alpine and Apennine mountain areas and in the hilly areas of southern regions and islands. Altogether, these areas cover 46% of the national surface and represent 14% of the population. The presence of widespread extensive agriculture and the wide variety of natural habitats assign to these areas a particular importance in environmental terms. These areas account for 69% of the National protected surfaces and 45% of Italian agro-forestry surface.

Against the above mentioned negative dynamics of the Italian agricultural system, the number of multifunctional farms, in which several activities are related to the agricultural production, grow strongly (+48.4%). This dynamic is mainly due to farms that produce renewable energy (21 thousand), which, in just three years, increased by about six times, and to

those who transform their products (42 thousand), which roughly doubled (+97.8%). An increasing number of farms use organic production methods, for both crops and livestock (+4.7% compared with 2010); the organic surface increased from 6.1% to 7.7% of the national agro-forested surface.

This brief overview reveals the great diversity of products and firms, activities and territories, showing the richness of the Italian agro-food system and its potentiality to contribute to local sustainable development while governing its complex relationship with the environment.

### **Agriculture and the environment: a complex cause - effect relationship**

Agricultural and environmental impacts are characterized by complex cause-effect relationships. Agriculture produces impacts on the environment, on the one hand, whereas, on the other, it suffers from environmental impact in terms of environmental disasters (FAO, 2015).

Different products and different manufacturing processes characterize the food and drink sector. In spite of the heterogeneity of the food and drink sector, the majority of environmental impacts are caused to water and energy consumption (Fiab, 2008). Food production and consumption have also impacts in terms of use of natural resources, greenhouse gas (GHG) emissions, air and water pollution, waste generation and biodiversity loss (Dri et al., 2015; FAO, 2013; Smith et al., 2014). The environmental weigh of food production is widely documented in literature: it has been estimated that food and beverages are responsible for about 20-30% of the environmental impacts caused by private consumption in Europe (Fantin et al., 2012). According to Fassio's (2012) study, the EU food and drink sector is responsible for 23% of global resource use, 18% of greenhouse gas emissions, 1.8% of Europe's total water use (Fassio, 2012; FoodDrinkEurope, 2012) and 5.3% of industrial final energy use globally. Moreover, agriculture contributes to 10% of greenhouse gas (GHG) emissions in the European Union (AEA, 2015).

In Italy, 43% of the territory is used for agricultural activities (ISPRA, 2015a) and, in 2013, 7.0% of the Italian GHG emissions originated from the agricultural sector, which is the second source of emissions after the energy sector. Agricultural sector has been the first source of emissions in terms of CH<sub>4</sub>, N<sub>2</sub>O and CO<sub>2</sub> with 42%, 61% and 0.13% of national emission levels (ISPRA, 2015b).

Water production footprint in Italy amounts at about 70 billion m<sup>3</sup> of water per year. Agriculture is the thirstiest Italian sector, with 85% of the water footprint made up of water to produce crops for both human food and livestock feed (75%), and for grazing and breeding (10%). The remaining 15% is divided between industrial production (8%) and household use (7%). The total water consumption footprint in Italy is about 132 billion m<sup>3</sup> of water per year, which is equivalent to 6,309 litres per capita per day. Food consumption (including agricultural



and animal products) contributes to 89% of Italian daily water footprint. Products of animal origin (including milk, eggs, meat and animal fats) account for almost 50% of the total water footprint consumption in Italy (ISPRA, 2015a).

Italy is among the richest countries in Europe in terms of biodiversity. The high environmental impact of its agriculture on biodiversity is mainly due to fertilizers and pesticides use (Palmieri et al., 2014). The environmental impact is alarming, as Italy accounts for approximately 54% of the total European pesticides consumption (ISPRA, 2015a). Moreover, intensive agricultural practices have reduced the organic content in the soil, which is the most important factor to maintain agricultural productivity and multifunctional approach. The heavy use of machinery, particularly in moist soil, determines soil compression, which in turn causes yield decreases and drastic reductions in water infiltration, with consequent increase of runoff. Moreover, 10% of the Italian territory is highly vulnerable to desertification, while 49.2% of it has a medium vulnerability and 26% has low or zero vulnerability.

However, agriculture has not only negative aspects, such as environmental impacts. Agricultural areas play an important role for biodiversity, as a large number of species have adapted to live in agricultural environments, thus highlighting the importance of agriculture for the natural heritage.

Agriculture is subject to environmental impacts in terms of environmental disasters. Worldwide, the average annual number of environmental disasters occurred between 2003 and 2013 was twice the average annual number of disasters occurred in the 1980s (FAO, 2015). According to FAO study (2015), between 2003 and 2013, disasters caused by natural hazards worldwide resulted in USD 1.5 trillion damage and nearly USD 80 billion were lost as a result of declines in crop and livestock production after disasters in developing countries. Considering only climate-related disasters, the agriculture sector absorbs 25% of the total damage and losses at global level.

Disasters that impact on agriculture have direct effects on livelihood and food security. Disasters can cause unemployment and/or a decline in wages and, therefore, in farmers' income. They lower the availability of food commodities in markets, the quantity and quality of food consumption are reduced and food insecurity and malnutrition increase. Moreover, environmental impacts such as climate change cause impacts on agriculture in terms of yield reduction (Barilla Food & Nutrition Centre, 2010). In fact, according to the Barilla Food & Nutrition Centre (2010) study, in 2080 Italy will have a loss of about USD 2.4 billion in terms of reduced agricultural production due to climate change. According to Mendelsohn and Schlesinger (1999), the agricultural production (in monetary terms) is a mathematical function of the annual average temperature, the annual daily average precipitation and concentration of

carbon dioxide in the atmosphere. The higher levels of carbon dioxide in the atmosphere (called carbon fertilization) could increase crop productivity. Following Mendelsohn and Schlesinger's model, in 2080 Italy could have a productivity increase of about USD 2.1 billion due to higher levels of carbon dioxide in the atmosphere (Barilla Food & Nutrition Centre, 2010).

To ensure a sustainable agro-food production and reduce the environmental impact of the agro-food sector, different strategies should be adopted. For example, precision agriculture could optimize resource allocations and decrease environmental problems (Silva et al., 2007). In addition, different agronomic techniques and practices could be used, such as perennial cereals use, minimization of soil processing, land rotation, arboreal crops use, efficient water management, biotechnology, grazing land management and livestock optimization (Barilla Food & Nutrition Centre, 2010).

Finally, in a sustainability framework, the contribution of the organic sector is relevant in that it applies appropriate techniques that respect the environment.

### **The development of Italian organic farming in the European scenario**

In 2007, the EU Institutions issued a Council Regulation (EC) No. 834/2007, setting out the principles, aims and general rules of organic production, and defining how organic products were to be labelled, so modifying the prior Regulation No. 2092/91 on the same subject. In the aim of the Legislator, organic agriculture is a production method based on interaction of the best environmental practices, high level of biodiversity, nature protection, and severe criteria on animal welfare. It is intended to respect natural systems and cycles, and therefore biological and mechanical production processes and land-related production should be used in a sustainable way, without using genetically modified organisms (GMOs). Since 1991, the EU Regulation No. 2092/91 has posed the legal basis for organic producers to obtain public subsidies, the development of organic farming in Europe was supported by the Community Agricultural Policy and achieved considerable levels in last decades.

Organic farming has not only got an economic value, but also a social and environmental significance. Organic farming produces in a more natural way, preserving soil fertility, water quality and biodiversity through good farming practices – rotation, green manure, intercropping, ban of chemical inputs in productive processes, “light” methods of land cultivation, utilization of different, local and resistant species. Moreover, it contributes to greenhouse gases reduction and climate preservation, the highest environmental urgency of the planet. If intensive agriculture is a big source of emissions (nitrous oxide, methane gas, ammonia), organic farming and its sustainable techniques can reduce them and keep carbon in soil, up to 2-4 tons of carbon per ha (Legambiente, 2011).



The development of organic farming will be highlighted in the following pages. Periodical reports issued by European Union and by ISMEA and CREA (two Italian research institutes focused on agricultural economics) display data on principal economic variables and will be the main sources utilized to make a brief descriptive picture of the sector and of its recent evolution.

As we mentioned above, organic farming has experienced an interesting development in the last ten years in many European countries. In fact, organic farming areas have increased to such an extent that, in 2012, cultivation areas exceeded 10 million hectares (source: Eurostat), expanded at an average yearly growth rate of 6%, that was even higher (+13%) in countries that acceded the EU after 2004 (the so-called EU12), owing to the support of the Community Agricultural Policy (CAP).

Nevertheless, most of total organic crop area is located in the EU 15 (78% of total) and Italy is one of the main producers, with more than one million hectares (1.167 mil), at the second place after Spain, with 1.593 million hectares (tab.3). The importance that Italian organic farming assumes in the European scenario has not reduced even in the current long economic crisis that strongly hit the country. Looking at the latest data of the Italian Information System on Organic Farming (SINAB, 2014), organic crop area is further expanding and in 2013 it amounted to 1.3 million ha, representing 3.5% of the total surface devoted to organic cultivation in the world. Furthermore, the number of operators increased: 52 thousands, among which 46 thousands were farmers, 6.000 processing enterprises and 260 were importers.

**Table 3 - Total organic crop area (ha)**

	2005	2006	2007	2008	2009	2010	2011	2012	Var. 05/12
EU 27	6.475.828	6.881.674	7.268.843	7.790.643	8.549.001	9.179.900	9.613.500	10.032.447	55
EU 15	5.460.172	5.733.240	5.936.212	6.332.672	6.914.492	7.248.067	:	:	
Spain	807.569	926.390	988.323	1.317.539	1.602.871	1.615.047	1.803.661	1.756.548	118
Italy	1.069.462	1.148.162	1.150.253	1.002.414	1.106.683	1.113.742	1.096.889	1.167.362	9
France	550.488	552.824	557.133	583.799	677.513	845.442	977.234	1.032.939	88
Germany	807.406	825.539	865.336	907.786	947.115	990.702	1.015.626	960.200	19
Poland	161.511	164.356	289.440	313.944	367.062	521.970	609.412	661.956	310
UK	608.952	604.571	660.200	726.381	721.726	699.638	638.528	590.011	-3
Austria	479.216	477.472	481.637	491.825	518.172	538.210	536.877	533.230	11
Sweden	222.738	225.431	308.273	336.439	391.524	438.693	480.185	477.685	114

Source: Eurostat.

Looking at the share of total Utilized Agricultural Area devoted to organic crop, we see how the relative importance of organic agriculture in primary sector varies from country to country: as shown in table 4, some countries have percentages higher than 10% - Austria (19%), Sweden (16%), Latvia (14%), Czech Republic (13%) – and Italy is close to 9%.

**Table 4 - Share of total organic crop area out of total Utilized Agricultural Area (%)**

	2005	2006	2007	2008	2009	2010	2011	2012
EU 27	3,6	3,7	4	4,4	4,7	5,2	5,5	5,7
EU 15	4,2	4,4	4,6	5	5,3	6,4	:	:
Austria	16,7	16,7	17,0	17,4	18,5	19,5	19,6	18,6
Sweden	7	7,2	9,9	10,9	12,8	14,3	15,7	15,8
Estonia	7,2	9,6	8,7	9,6	11	12,8	14,1	14,9
Czech Republic	7,1	7,2	8,2	9	10,6	12,4	13,1	13,1
Greece	7,6	7,6	7	7,8	8,5	8,4	5,2	11,1
Latvia	6,8	9,4	8,1	8,9	8,7	9,2	10,1	10,6
Italy	7,3	7,9	7,9	7,5	8,1	8,6	8,4	8,9

Source: Eurostat.

About 83% of 186 thousands firms are located in those countries: once again, higher numbers can be found in Italy, with 43 thousands farms, and then in Austria, Spain, Germany, Greece, France and Poland, and are increasing regularly, while conventional firms are declining (source: Eurostat FSS data). Anyway, organic farms in Europe are only a small percentage of the total (1.6%), and have some peculiarities. They are generally bigger (34 hectares of utilized agricultural area), with younger managers, 61% of them are under 55, whereas in conventional farms they represent only 44%. The Italian case is not an exception: organic farms have an average area of 18 hectares, whereas the average size of conventional holdings in Italy is only 8 hectares.

In Europe, the main organic cultivations are whether vegetables crops or animal productions. Looking at the area destined to organic farming, permanent grassland – with 45% of utilized agricultural area (U.A.A.) – cereals (15%), and permanent crops (like olives, fruit, grapes) (13%) are the most important cultivations. In the livestock sector, sheep and cattle are the main animal resources, while the development of organic pigfarming is inhibited by the difficulties of replacing traditional animal feed with organic inputs.

In Italy too, fodders, meadows and pastures represent the most important sectors, as they cover 47.8% of the organic surface, whereas 14.5% is devoted to cereals, 13.4% to olive trees and 5.2% to grapevine. In Italy, as in other European countries, organic operators and surfaces are concentrated in some regions: Sicily, Calabria and Apulia, in particular. It is noteworthy that all these three regions are classified as “less developed” by the EU Institutions, because their per capita GDP is less than 75% of the European average, and Sicily and Valle d’Aosta, also show the highest organic crop area increase (an annual 46.3%). So agricultural farming could be an interesting way to sustainable development even in territories that suffer from economic and social difficulties.

The reasons of organic farming development can be traced not only in the CAP measures that support the sector, but also in the meaningful expansion of consumers demand (Forleo,

2015). In 2012, the organic market in Europe had a total turnover of 22.8 billion euro (Source: CREA). Germany was the largest one (7 billion), followed by France (4 billion), the United Kingdom (1.95), and, at the fourth place, Italy (1.9). Nevertheless, the highest levels of per capita expenditure were recorded in Switzerland (189 euro), Denmark (159), and Luxembourg (159), compared with an average of only 31 euro for Italy. However, in 2012, the value of organic food consumption in Italy had risen steadily since 2005, approaching 2 billion (1.9) euro, thus suggesting that the organic market was out of the niche. In 2014, in Italy, organic food expenditure registered an impressive growth of 11% compared with the previous year, although in the same period total food expenditure reduced of 1.4%. The sector, therefore, once again, showed a trend in contrast to the general food sector trend and interesting growth rates in a still difficult economic phase. This was due to a greater consumer attention to food security and environmental protection issues and to a more effective organization of supply – with an increase in terms of categories of products, a wider assortment of items in supermarkets, introduction of new product lines and private label. In meeting nature and food safety needs, the organic sector helped to consolidate a new, more sustainable consumption and nutrition model. The “new” consumer pays attention to a combination of factors related to diet and health: lack of chemical residues in food processing, nutritional and health protection, as well as lack of GMOs.

With regard to farming and food characteristics, attention is paid to products made with traditional production techniques and which are respectful of nature and ecological balance (attention to rural areas, open-air cultivation, seasonal production, pristine environment); without neglecting time-saving characteristics (ease of use of the product, ready availability, long-life, width of the set) (Forleo et al., 2014). Therefore, consumers seem to be more and more interested in food attributes linked to health benefits and safety assurance. This phenomenon will probably increase the importance of organic food in the consumer’s diet and favour a further development of the organic sector.

### **Farm tourism**

This paragraph highlights the features of farm tourism in Italy and its contribution to environmental sustainability, by presenting the results of some investigations recently carried out by the Research group in Agricultural economics and policy, Department of Economics (EGSeI), University of Molise, Italy.

All over the world, various forms of rural tourism represent key factors for local development, in particular for rural marginal areas and for every territory rich in environmental and cultural heritage strongly appreciated by tourists.

In the European Union (EU), where rural areas cover over 80% of the territory, farm tourism is considered a way to revitalize these areas by increasing their income, creating new jobs in rural communities, especially in the regions that experienced a decline in agricultural activities and where there are few other possibilities of gainful employment outside farms. Farm tourism is a pillar in the diversification of farm activities. The EU financial support for this activity acknowledges the farm's multifunctional role and its economic, environmental and social relevance for rural areas (European Commission, 1998). Nevertheless, EU considers farm tourism just as a form of holiday, carried out in rural areas (European Community, 1984). For this reason, several EU Member State consider "farm tourism" on the same footing as other forms of rural tourism, without the formulation of a specific law. In other cases, national legislations do not specify the relationship between working farm, where agriculture or livestock are regularly practiced, and tourism activities in the farm. One of the consequences of this kind of approach has been the scarce involvement of working farms in the development of the phenomenon and the creation of tourist firms in which agriculture is not practiced. Indeed, farming, if sustainable, is very important for tourism activities, because it produces positive external effects on food quality, on the conservation of natural resources, biodiversity and landscapes, all effects that are the *leitmotiv* of tourism destinations.

In Italy, farm tourism is differently regulated with respect to the other EU countries. The Italian legislation considers "farm tourism" as tourism activities that can be performed only by farmers and their family members (Law no. 96/2006). Tourism activities in the farms must be connected to agriculture, which remains the core activity of the farm, and it is secondary and never dominant as compared to agricultural activities. This predominance of agricultural activities is set in terms of working hours and not in terms of income (Mastronardi et al., 2015b). In other words, in Italy farm tourism cannot exist without farming, and the farmer is forced to dedicate himself mainly to traditional agricultural practices.

According to the Italian National Statistics Institute (ISTAT), in 2013, there were 20.897 Italian farms authorized to carry out farm tourism activities (about the 2% of the total). Regarding the services offered, overnight stays are the most important, as in the rest of Europe, followed by food service and product tasting. Moreover, 20% of farmhouses only offer lodging, while 36% combine overnight stays and food service and 49% offer, together with lodging, at least one service such as horseback riding, hiking, naturalistic observation, sports (mountain biking, trekking), educational activities. Farmhouses offering other activities, with or without lodging, represent 59% of the total.

48% of farmhouses are located in the North of Italy, while the 34% are in the Centre and 18% are located in the South of Italy. This distribution reflects the historical economic and social

condition of Italian Regions, with the North characterized by a higher *per capita* income and by better infrastructures (i.e. highways) and services (i.e. the presence of low-cost flight operators), that allow a greater entrepreneurial dynamism of farmers. Tuscany and Alto Adige are the Italian Regions with the higher number of farmhouses, 20% (4.108) and 15% (3.098), respectively, of total farms. These Regions are historically very important for all types of rural tourism.

As regards the altitude distribution, 33% of them are located in the mountains, 52% in the hilly areas and just 15% in the lowlands. This data shows that farm tourism is perceived as a form of income diversification for farms in marginal agricultural areas.

Farm tourism could have positive effects on the landscape, on biodiversity and use of natural resources. Within the scope of this paper, it is considered of a certain relevance to deal with the sustainability of Italian farmhouses. To deal with this issue, we analysed and compared the environmental performances of Italian farms with and without tourism activities (Mastronardi et al., 2015c). The data used was taken from the Italian section of the FADN (Farm Accountancy Data Network), a network created to satisfy the information needs of the European Union relating to the business operation of agricultural enterprises. We used a Logit model and the Binary Response Model Regression estimation method. Results of this study show that farmhouses tend to develop more sustainable techniques which have a positive impact on biodiversity, landscapes and natural resources and that they are more environmentally sustainable than other farms. This is possible because Italian law considers farm tourism as an ancillary, never dominant activity with respect to traditional farming, although tourism activities are usually more lucrative and, above all, characterized by a faster economic return. Nevertheless, the environmental sustainability carried out by Italian farmhouses does not compromise the achievement of other sustainability issues in the economics and social spheres: in a comparison with farm without tourism activities, our findings show that tourist farmhouses obtain higher performances in terms of income and constitute a good living for farmers in marginal mountain and hill areas.

### **Short food chains**

This paragraph deals with another topic relevant when analysing the interaction between agriculture and environmental sustainability.

Short Food Supply Chains (SFSCs) can be defined as agro-food supply chains with only a few intermediaries between producer and consumer and/or a short distance, geographically, between the two (Parker 2005). The short supply chain touches all aspects of sustainability, since it can “re-connect” agriculture to consumers (Curry 2002) whether socially, through dialogue and the sharing of information between the parties involved, or economically and

environmentally, managing agricultural resources with a view of obtaining profits and maintaining public goods, respectively.

Studies on the effect of SFSCs on producers highlight the various associated environmental, social and economic implications. In terms of environmental reasons, farms that adopt forms of SFSCs tend to implement more sustainable production methods, which in turn have a positive impact on biodiversity, the landscape and the natural resources of the territory (Marino and Mastronardi, 2013). From a social point of view, local markets generate a net profit in terms of employment (Bullock 2000), giving to young farmers the opportunity of developing their activity, and to pensioners an additional source of income (Mastronardi et al., 2015a). Economically, farmers taking part in SFSCs can make a significant profit (Brown 2002) and they have a direct input on price, which can be determined in a totally autonomous way (Cicatiello and Franco 2012).

Within the European Union, SSCs are a relatively recent phenomenon. In the 1990s, such markets started to grow up especially in Germany, France and the UK. The development of European SSCs builds on different foundations: mostly on activities of regional quality production (Sonnino and Marsden, 2006), on quality definitions, such as sustainability or animal welfare, and on innovative forms of marketing in countries such as the UK, the Netherlands, and Germany (Ilbery and Maye, 2005).

Within the European framework, the Italian experience of SSCs has some specificity. In Italy, SSCs gained momentum in the 1980s, with further development towards the end of the 1990s, while the greatest expansion started around the mid-2000s. In Italy, there are now 270,497 farms that sell directly to consumers, representing 26% of the total number of farms (+22.1% in 2007, + 5% than in 2000), with 1,367 Farmers' Markets, which increased by 44% over the past two years and 890 Solidarity-Based Purchasing Groups (Mastronardi et al., 2015a).

In this context, we analysed the Italian situation of farms that are involved in SFSCs, with a particular focus on social, economic and environmental aspects. It makes sense trying to understand whether there are differences between the farms surveyed and the universe of farms at a national level. The data used was gathered by means of a direct survey carried out within the framework of a project financed by the Italian Ministry of Agriculture, Food and Forestry and involved 226 producers, selected according to territorial distribution. In Italy, farms involved in Short Food Supply Chains show a good level of crop diversification -important from an environmental point of view- compared to the universe of farms at a national level: about 75% of the areas produce at least three different types of crop (against 28% nationally) and as a result, there is less use of monoculture practices and probably an improvement in overall biodiversity. In terms of UAA (Utilized Agricultural Area), 40% of the areas are cultivated using organic



methods, a value well above the national average (9%), and this is probably determined by the demand on the part of consumers for SFSCs that focus on quality products, while observing with increasing interest the principles of organic and ecological farming. In addition, the areas with permanent meadows and pastures are even more substantial (67% of the total) and higher than the national level (27%), confirming that, in this circumstance, agro-environmental policies relating to the conservation of semi-natural areas in the territories where the surveyed farms are located are indeed effective. These policies are important because they improve the environment in which farming takes place. Forest areas, on the other hand, affect the surveyed areas less (29% of the total), but this is still significant if compared to the national values (18%). Similarly, farmland falling within protected areas is even less (13% of UAA), but still more than the national value (8.6%). Despite benefitting from the spread of protected areas in the suburban belt surrounding some cities, this figure indicates a positive impact on the relationship between farming and environmental protection, especially when considering that the persistence of agricultural production processes is positive for the environment and biodiversity in these areas. Farms are located next to the main markets, and the average distance from the market is about 25 km. According to this data, farms that join forms of SFSCs tend to develop more environmentally sustainable practices, which in turn have a positive impact on biodiversity, on landscape and the natural resources of the land. In this sense, SFSCs provide an opportunity to reduce the negative external factors of agriculture.

In terms of social sustainability, the farms involved in SFSCs employ, on average, six people, including two family members and two female workers. The WU/UAA ratio (Utilized Agricultural Area to Working Unit) shows relatively low values, due to the high incidence of labour-intensive crops in the production system, such as fruit and vegetables, as well as complementary activities, in particular food processing, which is highly labour-intensive. Family workers and women are 34% and 35% of the labour force, respectively. The proportion of young workers, despite being at lower levels (25% of the total) is still quite significant, while the percentage of disabled workers and pensioners is rather marginal. Compared to the overall employment structure in Italian farms, the number of women employed within business operations taking part in SFSCs are not particularly high. The presence of young people, traditionally quite rare within the agricultural sector nationally, seems instead more widespread here. Data may indicate that these innovative forms of marketing are chosen and implemented mainly by new generation farmers. The short chain thus offers good opportunities for young entrepreneurs to develop their activities and leads to the employment of people outside their immediate family to cover the increased need for labour, creating more job opportunities for residents of rural areas. There is, however, the problem that SFSCs seem less capable of

providing additional income to pensioners involved in agriculture or employment opportunities for the weaker elements of the workforce, such as people with disabilities. This definitely limits their social impact in terms of the employment of weaker sections of the population.

From the perspective of economic sustainability, the farms being surveyed show higher average values in terms of produce ready for consumption, such as horticultural crops (€ 144,845), and, to a lesser degree, fruit-bearing trees (€ 35,154) and oil and wine products (€31,387). Other types of crops show considerably lower values, with the exception of beef products. Compared to the national framework, farms specializing in horticultural products that sell through short supply chains reveal a higher standard output than that recorded for the horticultural sector nationally (€ 81,137). This data is confirmed for animal-based products, in particular beef (€ 17,637 against € 6,402) and sheep (€ 5,782 against € 1,487). On the contrary, farms specializing in oil and wine products show lower values than the national level (€ 43,487). There is no appreciable difference for the other farm produce.

Finally, the analysis carried out provides the means to reflect upon the very real possibility that SFSCs promote the spreading of the most sustainable production models and, if this is indeed the case, also upon the most effective policies to support these initiatives, or, on the contrary, upon those that are most useful in strengthening this aspect.

### **Social farming in Italy**

This paragraph underlines the social function of agriculture in relation to both the maintenance of rural socio-cultural traditions, and the provision of recreational, educational and therapeutic services. To this end, the social model of agriculture at the local level should be divided into two main components: the dial of territorial potential (environmental and geographical characteristics of the territory) and the potential business (quality of human resources and business). Under the first component, some important functions of the territory must be examined, such as peri-urban agriculture, the maintenance of landscapes at risk of degradation (see the European Landscape Convention), the rural landscape, the connectivity of ecological networks. The potential for business, on the contrary, is to be found in the presence of agro-food activities in rural districts and in food businesses that produce quality products.

Social farming (SF) is a traditional as well as an innovative activity for farmers. It involves the use of resources from agriculture for rehabilitation and social inclusion. The term SF has recently entered the scene of rural development in the EU, embracing a wide constellation of different practices that are emerging in the territories; experiences that, in many cases, were born as bottom-up actions and have 'grown in the shade' for a long time. SF activities involve a large number of target groups, both in urban and rural areas (youngsters, elders,

disabled people, migrant, prisoners, and added people). SF is also connected to a large number of issues related to rural development like the organization of local services, the evolution of farmers' attitudes in the relationships with local communities and their reputation, the re-organization of local economy and the introduction of new elements of solidarity and reciprocity. The theme of multifunctional agriculture should be seen also in the lesser-known aspects.

The paths of countryside reorganization in response to the diversification and evolution of urban demand may be different. A first path to explore is that of the agriculture that links the presence of production processes to external requirements, and to educational, environmental and social demands expressed by the community. The second path can meet the needs of urban citizens to have access to fresh and healthy food, to keep in contact with nature, to get a chance for recreation and use of free time, to places where weaving new social relations (community garden, and urban gardens social, peri-urban agriculture, direct sales, and accessibility). Finally, a third path to follow is that of agricultural land confiscated to the mafia, in order to be used for social purposes.

*The first path: the social function of agriculture*

In most European countries, the social function of agriculture is not an organized system, but rather a patchwork based on voluntary and bottom-up actions, and not supported by any specific policy or institutional setting. Therefore, a careful construction of a new institutional environment for social farming is necessary. This means involving the different actors in the dialogue, especially ensuring their active participation.

Social Agriculture experiences in Europe stem from an original synthesis and spontaneous crossing between people's needs, the resources of agriculture, new contemporary cultural trends and specific local organizations and values. The Dutch experiences are those more coded. In 2003, a network, "Farming for Health", was built to link different experiences:

- Dutch → Care farms
- Norwegian → Green Care
- British → Horticultural Therapy
- Swedish → Green Rehabilitation
- Italy → A.S. (type-B Social cooperatives, objective inclusion)

In Europe, there are about 6,000 AS projects, of which 1,000 in Italy (Di Iacovo, 2010). In Italy, social cooperatives are the main legal form taken by social enterprises. Law No. 381 of 1991 distinguishes type-A social cooperatives, aimed at delivering social services, health and education, and those of type B, tasked to promote the labour integration of disadvantaged people through production for goods and services of various kinds.

A survey conducted by Euricse (European Research Institute on Cooperative and Social Enterprises) on behalf of INEA, counted 389 type-B social cooperatives located throughout Italy. Their founding members are people with low bargaining or with problems of different kinds. The workers engaged in such activity are 3,992 with a value of production of 182,025 million euro (INEA, 2012). Other sources (associations, regions and their agencies, AIAB, etc.) show a variable number of realities at regional level. Moreover, the Regions, not having a national regulatory framework, have initiated different legal paths (Table 5).

**Table 5 - Presence of social agricultural realities by region**

Regions	Legislative reference	Farms	Social agricultural cooperatives	Associations	Prisons	Other	Total
Piedmont	–	7	9	4	6	6	32
Valle d'Aosta	–	–	–	–	–	1	1
Lombardy	l.r. 25/2011	44	22	1	2	1	70
Trentino-Alto Adige	–	–	–	–	–	–	0
Veneto	l.r. 14/2013	9	9	2	1	–	21
Friuli-Venezia Giulia	l.r. 25/2007	–	–	–	–	–	0
Liguria	–	–	–	–	–	–	0
Emilia-Romagna	l.r. 4/2009	–	–	–	2	–	2
Toscana	l.r. 24/ 2010	7	43	9	6	6	71
Umbria	–	–	–	–	1	2	3
Marche	l.r. 21/2011	3	17	1	3	1	25
Lazio	l.r. 14/2006	4	19	6	9	3	41
Abruzzo	l.r. 18/2011	3	2	3	2	–	10
Molise	reg. r. 1/2011	–	–	–	–	–	0
Campania	l.r. 5/2012	–	1	–	4	–	5
Apulia	–	6	3	1	1	2	13
Basilicata	–	2	3	2	2	–	9
Calabria	l.r. 14/ 2009	–	1	–	3	4	8
Sicilia	–	34	11	30	4	–	79
Sardinia	–	–	–	–	6	–	6
Italy	–	119	140	59	52	26	396

Source: INEA, AIAB, Forum nazionale agricoltura sociale.

*The second path: access to natural resources.*

In the Italian cities, the land used for growing domestic vegetable gardens and for recreational gardening amounts to 3.3 million square meters. Social gardens, assigned to citizens who request them, provide products designed for family self-sufficiency. The purpose of these assignments is to provide help to families in need, to provide educational and recreational activities and to preserve green areas between interstitial uncultivated areas otherwise subject to degradation. Nationally, there is a strong polarization of urban gardens in northern cities where 81% of the total gardens are located; in the Central regions, less than two out of three cities have urban gardens; in the South of Italy, they exist only in Naples, Andria, Barletta, Palermo and Nuoro (ISTAT, 2013).

A peculiar characteristic of the Italian social agriculture experience is its connection with security policies, with particular reference to the use of the lands confiscated to mafia organizations. The reuse of assets confiscated to the mafia for social purposes should be considered in a community development perspective in terms of employment, social inclusion, better quality of life and democratic participation. From the data of the National Agency, at 31 December 2012, the property definitively confiscated amounted to 11,238, 90% of which was confiscated mainly in five regions (Sicily, Calabria, Campania, Apulia and Lombardy). Half of the confiscated companies operated in trade (471) and construction (477) sectors, followed by those engaged in the hotel and catering (173) industries and finally those active in the agricultural sector (92).

### **Conclusions**

The complexity of the socio-economic context and the recent crises ask for a re-examination and reorganisation of production systems, paying serious attention to sustainability issues and the key role of territorial resources and peculiarities. The agro-food sector is at the core of these processes, being strongly linked to the environmental, the socio-economic and the territorial heritage.

The paper provides a picture of the main characteristics of the Italian agro-food sector and of the opportunities through which it may contribute to the sustainability of local development patterns. The paper discusses how to reconcile the agro-food system and sustainable development, and considers aspects such as agriculture-environmental interactions, organic farming, farm tourism, short-chain production, and finally, social farming.

These aspects are among the main recent phenomena characterising the Italian agri-food sector. Their contribution for the sustainable development of local economies is relevant.

In fact, to efficiently operate and compete on the globalized market, one of the most promising scenarios for Italy is the creation of a sustainable development system based on its territorial “identity”. In that way, supported by incisive and efficient political actions, the agro-food sector will be able to shift the market interest from globalised products to high quality goods and services presenting territorial peculiarities and sustainable characteristics. In this scenario, agriculture is the core of an integrated system which includes tourism, handicraft and all the other territorial activities combining territorial needs and sustainable development.

The richness of the Italian agro-food system is its great diversity of products and firms, activities and territories, which gives the system the potentiality to contribute to local sustainable development while governing its complex relationship with the environment.

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