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Organic Products from Traditional to Innovative

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Authors' contributions

This work was carried out in collaboration between all authors. Author TF designed the study. Author GAS wrote the protocol and wrote the first draft of the manuscript. Author MRL managed the literature searches, analyses of the study performed the structural equation modelling and discuss the conclusion. All authors read and approved the final manuscript.

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ABSTRACT

The market of European organic products is developing fast; in the last two decades it has reached a value of about 20 billion euro per year, with annual growth rates ranging between 10 and 15%. Organic products comply with rules that relate to sustainable production processes, and are regarded as high quality products. They are sold, generally, at higher prices than conventional products, but the progressive increase in the demand depends, to a large extent, on consumer confidence. Verification of the method of organic production is entrusted in the first instance to bodies of private inspection, and, in the second instance, to the supervisory system of public authorities. In 2011, the market of Italian organic products accounted for approximately 3% of the overall food market, placing Italy in fourth position among EU countries in terms of turnover. This

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implies an agricultural revolution that changed the traditional image of farmers. Through the allocation of a multifunctional role, organic farmers develop a complex system of rural life.

Keywords: Farmers; multifunctional business; sustainable development; tradition; biological products.

1. INTRODUCTION

During the last twenty years, the socio-economic structure of the most developed areas of the planet has borne major changes in agricultural processes; as a result, technological innovations triggered an agro-industrial revolution, supporting mass production [1]. Today, thanks to a modern civil consciousness, there is greater support for the opportunity of a return to sustainable agriculture [2]. The sector of organic production achieves an increasing interest thanks to both the consumers, who seek certified quality, and to farmers who acquired an increased sensitivity towards the protection and conservation of the natural environment. This trend did not originate specifically from the scientific-technological world, but from the social context that has arisen in recent decades. It becomes therefore necessary to further exploit the potential of small peasant farms, with additional "new" activities that may overcome the difficulties of sustaining business. This, probably, is the merit of young farmers who decided to follow their attachment to family traditions with an innovative way of conceiving "old rural activities" encompassing improved product quality, respect for the environment and affirmation of rural culture. Organic farming is but one of the options for environmentally sustainable agricultural production. Surely, it is the most radical form of sustainable agriculture and the only approach which has long been defined and implemented within the framework of a complex system of laws and regulations that have progressively become established and acknowledged. The International Federation of Organic Agriculture Movements [3], defines this specialized farming sector as follows: "All agricultural systems that promote the production of food and fiber in a socially and economically healthy fashion and that respect the environmental point of view are based upon the production capacity and the inherent fertility of the soil. Through their respect of nature and of plants, animals and the landscape, they optimize all these interdependent factors [4]. Organic agriculture dramatically reduces the use of external inputs through the exclusion of fertilizers, pesticides and chemicals. Instead, it uses the power of natural laws to increase yields and disease resistance [5]. An official definition has been introduced in 1991 by the first European related legislative act, when the Council Regulation (Eec) No 2092/91 *on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs* entered into force. This Regulation didn't refer to livestock breeding that was later ruled by Council Regulation (Ec) N° 1804/1999 *supplementing Regulation* (Eec) N° 2092/91 *on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs to include livestock production*. As organic production refers to farming and food production (including preparation and distribution) in the following we'll only refer to organic farming. Thus "organic farming should primarily rely on renewable resources within locally organised agricultural systems. In order to minimise the use of non-renewable resources, wastes and by-products of plant and animal origin should be recycled to return nutrients to the land" [6]. The spread of scientific studies on the role of agriculture and of its impact onto environmental sustainability has profoundly changed the concept of farming and the operation of the organic products business management system [7]. In this process, farm workers are called upon to take direct involvement under the perspective of becoming socially responsible entities [8]. In terms of sustainability organic farming contributes to the sustainability of the whole system by "maintaining and enhancing soil fertility as well as to preventing soil erosion". The mentioned objective can be reached by an appropriate "soil fertility management, choice of species and varieties, multi-annual crop rotation, recycling organic materials and cultivation techniques". Organic agriculture creates productive landscapes: it successfully reconciles food production and environmental conservation. Organic management relies on local human resources and knowledge to enhance natural resource processes, respecting ecological carrying capacities. By reducing dependence on off-farm inputs and creating more balanced nutrient and energy flows, ecosystem resilience is strengthened, food security is increased and additional incomes are generated [9].

Sustainable rural development can be defined as a process of multidimensional change affecting rural systems [10]. Economic growth, improvement of social conditions, and conservation of natural values are all equally important features in sustainable rural development, which should be induced according to a bottom-up approach, through a participated and sustainable use of local endogenous resources (environment, labour force, knowledge, patterns of production, consumption, and communication). Among the differentiated developmental paths currently available to rural areas, in the sustainable approach agriculture still plays a central role, despite its declining importance worldwide in economic terms and for the labour market [11].

The willingness to change is influenced not only by economic advantages, but also by features and social interests, by expectations of prestige, by norms, by values, by reference groups, by the availability of economic resources and means of production [12]. An important role, at this stage, is taken by the administrative sector society (CAA, CIA, Coldiretti, Confagricoltura etc.) whose role in the access to information and know-how is necessary to the realization of change concerning market policies, perspectives and objectives of agricultural policy. A new social consciousness that rediscovers the environment, animal welfare and, not least, consumer confidence is advancing [13].

With this awareness, and with the on-going transformations in the agrarian sector at Italian and at European level, a new type of agriculture emerged in recent years, with the merit to awaken new interest concerning issues related to both welfare and the health of people and of 'environment, aiming at the protection and enhancement of natural resources. More properly, it can be argued that agriculture, under the logic of economic and ecological sustainability, as a primary human activity draws its original roots from the organic production method [14]. This system includes a number of activities that address the behavior of citizens and farmers and who pay particular attention to methodological issues of production and consumption. Moreover, Policy makers, too, have progressively acknowledged these valuable potentials of organic farming, which are instrumental in solving delicate matters such as environmental protection, preservation of rural values, reorientation of agricultural produce back to the market, the safety and quality of food.

This mini-review article would address to describe the growth of organic food products production in European countries and the impact of organic farmers in rural development with particular reference to Italian country.

2. ECONOMIC EFFICIENCY, ENVIRONMENTAL SUSTAINABILITY AND RURAL DEVELOPMENT

Organic farming enhances social utility companies and manufacturers positioned at the center of business decisions; hence the clear recognition of the strong positive link that such an activity has with the territory. It bases its principles, and in particular its objectives, on common practices designed to minimize human impact on the environment, thus allowing the agricultural system to operate in the most natural possible way. This production approach developed originally in Germany, in Austria and in Switzerland during the first half of the last century. It then stretched to the Netherlands and to other countries, including Italy [15], which, with its 45,000 businesses and more than one million hectares, is the third largest European organic producer [16]. The economic development of organic farming had to overcome great difficulties because of the opposition represented by standard processes which were created and proliferated in the agricultural field for more than half of the twentieth century [17]. During this period, chemicals, herbicides and pesticides had a significant impact onto the increase in agricultural production [18]. Since then, there has been a steady development of organic production that has made its way among many difficulties. Technical and organizational support (mainly at the marketing level), experienced qualified technicians able to assemble various elements of a real organic farm, whose maximization is not a trivial combination of inputs and natural resources but requires entrepreneurial capacity and a strong linkage to the territory; these are essential inputs of what is called sustainable development [6].

The manufacturer/distributor is attentive not only to the affordability, but also worries about the perspective of consumers who acquire increasing knowledge of product quality, and a more refined appreciation of qualitative features [19].

To ensure consumer protection, control agents play also a fundamental role for producers, since their product is enhanced by a certification that

distinguishes it from mass products. From the consumers' point of view, the certification guarantees a product that has features compatible with Community rules protecting human health [20]. In the Italian system, the public administration exerts an activity of supervision of private bodies responsible for products' control, as it is in other EU countries. Specifically, the supervisory activity is carried out in respect of control agents by the Ministry of Agriculture Forestry, and Food (MIPAAF) through ICQRF that works in synergy with the Regions and the Autonomous Provinces (Public Administration) [21]. It addresses facilities that fall within the territory under its jurisdiction, through a periodic review of the maintenance of the requirements for authorization and operation of the same bodies. The supervisory activity towards ODC aims to directly verify the validity of their work and indirectly runs the company and the production method applied [22]. In short, the factors that have promoted the growth of the organic sector are:

- Material support for manufacture by the European Union with the reform of the Common Agricultural Policy (CAP);
- Legislative measures for the protection of human health;
- Effects that caused diseases such as (BSE, Bovine Spongiform Encephalopathy), CJD Disseminated intravascular coagulation in humans, foot and mouth disease, dioxin in chickens, etc.
- Evolution of the consumer is no longer based on social status, but on "lifestyles", therefore there is greater attention to issues of human health and nature.

3. QUALITATIVE ASPECTS OF ORGANIC PRODUCTION

High quality products can be of considerable benefit to the rural economy. Investing in these resources contributes to the identification of cultural, economic and social development options, as well as environmental conservation and a better quality of life. Organic production creates specific food chains that are necessary for producers and consumer's sensitive to environmental and social issues, interested in goods that contribute to the protection of human health, and to sustainable farmland development. Organic certification distinguishes products obtained with crop protection practices based upon biological balances. By choosing species and varieties best suited to specific environmental conditions, depending on soil type, weather conditions and climate, by respecting crop rotation [6]. The result is a balanced management of the soil supported by the technical monitoring of climatic parameters and of weeds. As for plant protection products, active ingredients employed in organic farming are mostly of natural origin, often derived from plant species.

4. THE SITUATION WORLDWIDE

The most recent data confirm that the global organic market is worth about 40 billion euro. Between 2000 to 2009, the market grew by 20.7% [23]. Europe and North America are two leading areas of the world market (about 21 billion euro). At the national level, the US, Germany and France are characterized by new growth prospects; also Italy has an excellent positioning on the world market (Fig. 1) [24]. According to a recent survey conducted by companies and market in 2010, the figure rose to about 54 billion euro, while the forecast for 2015, always on the food market segment, is about 83 billion euro, with an expected increase of almost 50%. Consumption of organic products, according to this survey, is mainly concentrated on food (about 86%). Europe is the biggest consumer of organic foods, beverages and dietary supplements, while expecting substantial growth in Asia and in emerging countries, with an average growth of between 16 and 20%.

In Europe, the growth of the bio products posted a double-digit increase: + 10%. Currently in the 27 EU countries, organic agriculture is about 5% of the entire total worldwide area (in most countries exceeds 10%), and continues to maintain a growth trend: in Europe, in the period between 2001 (5.4 million hectares) and 2010 (10 million hectares), the average annual rate of growth was 7.5%. Revenue rose at an average annual rate of 11% from 2004 to 2010. The European organic farming, covering about a quarter of global biological surface. Italy holds the record in number of farms and processing enterprises (24% of the European ones) [25].

4.1 Germany

The area planted to organics in Germany has exceeded for the first time in 2011 the share of one million hectares at the end of 2011. This corresponds to an increase of 24,924 hectares (+ 2.5%). The number of companies has grown

to 564 units, an increase of 2.6%. Overall, in 2011 the proportion of organic farms in the total number of farms was 7.5%, while the percentage of organic farming in the total agricultural area came to 6.1%. Almost two thirds of all organic farms are located in Bavaria and Baden-Wuerttemberg. Besides the cultivation it has increased also in processing plants that grew by 4.5% in 2011 to a total of 8,049. The number of importers has increased year on year by 84%. In total in 2011 there were 33,905 between producers, processors and importers. Germany has a network of specialized distribution bio-products very widespread (+ 10% in the first half of 2010), it boasts 58 stores with a surface area greater than 200 sqm [26,27].

4.2 France

The latest data of Agence Bio shows that in 2012 France, exceeded the record figure of one million hectares of agricultural area devoted to organic production. In 2011 the French market for organic food products worth nearly 4 billion euro, 11% more than in 2010. Between 2010 and 2011 the total number of organic operators grew by 14% to 35,271 at the end of 2011 (+ 40% compared to 2009). In late 2011, France recorded 23,135 organic farms, 12.3% more than in 2010 (+ 41% compared to 2009). About 4.5% of French companies grow organically according to a total of 975,141 hectares. After the record year of 2010, the area cultivated with organics rose by more 130,000 hectares in 2011. This means an increase of 15.3%. As of 15 May 2012 had been recorded 811 new organic producers, which will surely lead this year to exceed the limit of 1 million hectares of organic. However, the objective of achieving a market share of organic area compared with conventional 8%, was not achieved and today this figure stands at 3.5%. Some products weigh more than others: the share of organic fruits, for example, represents nearly 12% of the surface in this area followed by legumes with 25% and the vines with more than 7 [27].

4.3 Great Britain

In Britain, the organic market is worth about 2 billion euro. Quality foods for infants, increased by 21% to 110 million euro. According to the Soil Association, the agricultural area under cultivation with organic products is around 4.3% [28].

4.4 Italy

In Italy, the acreage under organic farming is about 1,167,362 hectares, with an increase compared to 2011, of 6.4%. The main crops are fodder, cereals, pastures and olives [28,29]. Today, the area under conversion to organic farming is approximately 1/20 of the utilized agricultural area in Italy. Organic production companies are more numerous in the South, while processing and import companies are more concentrated in the North (Fig. 2).

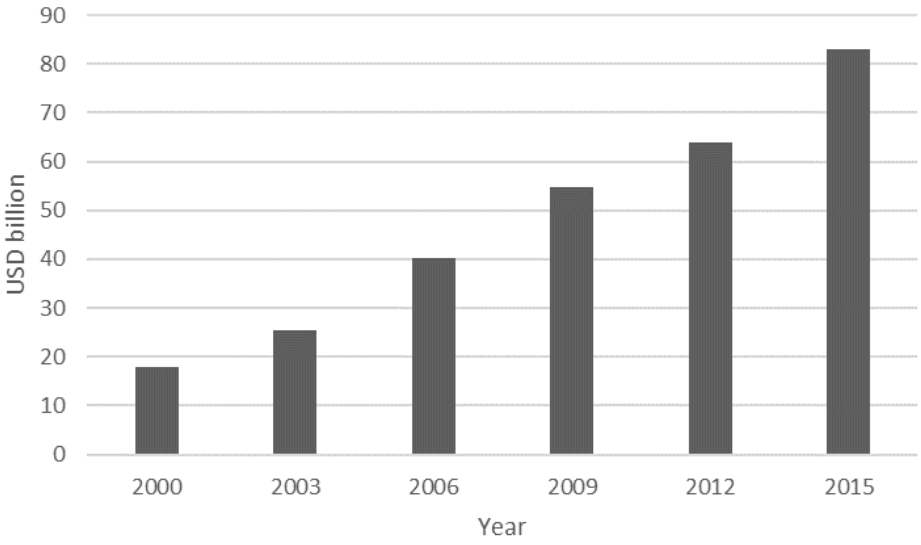

Fig. 1. Turnover of the organic market worldwide (in billion USD)

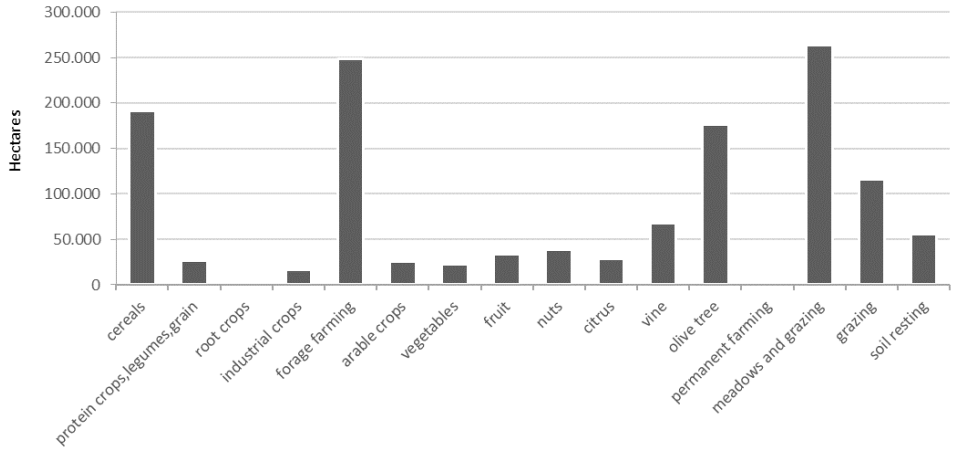

Fig. 2. Surface and farming in organic agriculture in Italy (2013)

The organic products purchase chain revolves around the certification system, which guarantees to the consumer the respect of process standards and product attributes, established by regulations. Organic certification refers to regulations governing legislation about the choice and the use of plant protection products with D.L.g. n. 150 of 14/08/2012, the subsequent National Action Plan and Directive 2009/128/EC. The subject is so complex that specifically for organic farming, we resort to Regulations no. 834/2007 and 899/2008, as well as to DM 18354 of 27/11/2009, which nationally has better defined some aspects needed to achieve the above certification. An analysis of the data provided to the Ministry of Agriculture and Forestry, by Control Bodies (CBs) operating in Italy on the 31st of December 2012, on the basis of the processing of SINAB (Information System National Organic Agriculture), referred that operators are 49,709 of which 88% were producers, 11.7% transformers; 0.038% importers; 0.20% other [30].

As for Italy, but the same trend is also found in other EU countries, the development of organic agriculture has reached a peak from five years ago; according to official data from the Ministry of Agriculture (MiPAAF) 1997, Italy is the second EU country for the number of companies growing certified organic products and developing organic farmland surfaces [31]. The key factor explaining this growth was the support for organic production carried out under the CAP reform and, in particular, starting with Reg. 2078. Although the phenomenon has been particularly evident in southern Italy, the development of export and the growth of the internal market is due to the North, and in particular to three regions: Veneto, Trentino and Tuscany. About 50% of the domestic production is exported. Despite this, specialized distribution chains have developed only in recent years [32].

4.5 Other Countries

In Belgium the market increased by 11% in 2009 vs 2008 (650 million euro). In The Netherlands, in the same period it reached 230 million euro (+ 20%). In Austria, during the first quarter of 2010, the increase was remarkable: + 30% from 2008. The turnover of the Austrian organic market amounted to 8% of the total turnover of the country. In general, in Europe the conventional market absorbs 67% of the organic products distribution, while specialized stores are around 14%. Organic catering expands at 50% per year, with constant growth and dissemination, 20% of the agricultural land is converted to organic farming [29].

Eastern European countries have shown strong increases especially in acreage. In 2009, Poland increased its organic farmland by 7%, up to 367,000 hectares. In the summer of 2010, the Czech Republic recorded an 11% growth over the previous year. The share of the area of organic cultivation now amounts to more than 10% of the total, i.e. 443,000 hectares.

Sales of organic products in 2009 in Europe reached 18.4 billion euro, and pointed to Germany as a leading country, followed by France. The highest annual per capita expenditure was recorded instead in Denmark, Austria and in Switzerland [33].

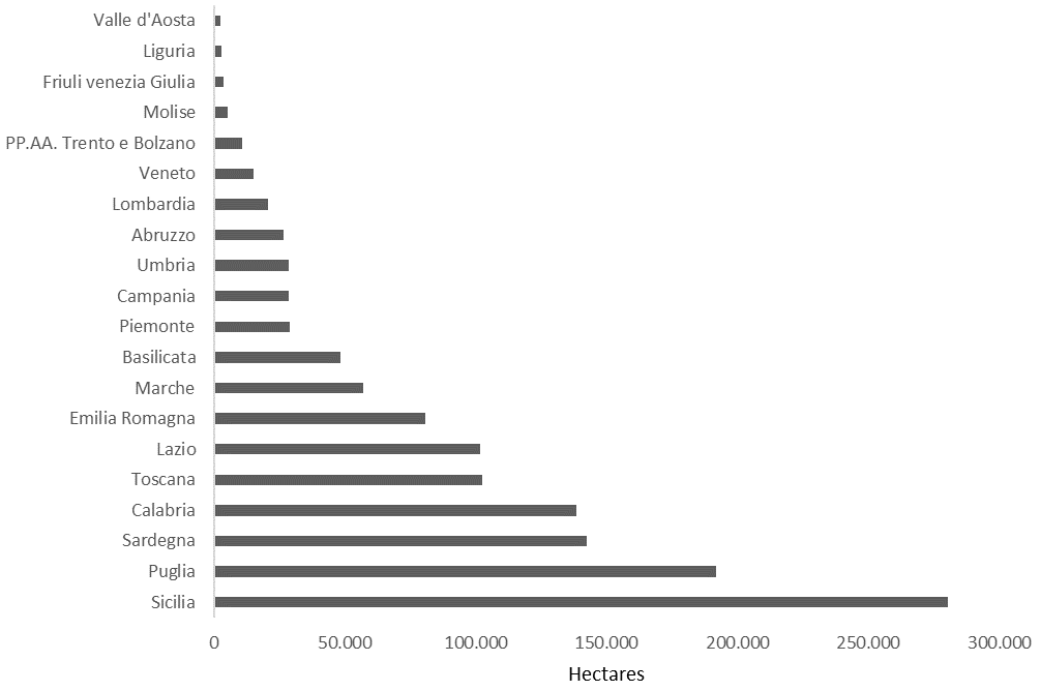

Fig. 3. Organic farming surface and in conversion in Italy in 2013

5. CONCLUSION

Organic farming has experienced considerable growth in recent years. Proponents of organic farming point to the environmental and nutritional benefits of organic systems, although these are contested by some. The spreading of organic farming methods and initiatives of sustainable rural development are both crucial processes underway in many agricultural areas. They often occur in the same areas and involve the same actors.

More recently, it has been argued that organic farming can provide rural development benefits through enhanced employment and through closer connections with the local economy, reconnecting consumers with producers and stimulating positive economic multipliers. Organic farming demonstrates the possibility of a further development and a greater potential for rural businesses through a new evolution of the Common Agricultural Policy. In fact, according to the latest guidelines, with the process of reorganization that is going through the entire agricultural sector, organic farming assigns a prominent role to development strategies at the regional and global level [34]. In some cases, it becomes the privileged vehicle for the revival of less-favored areas. Organic farming represents technological innovation, cultural, social, and economic revival, guided by "ancient traditional peasant techniques" [35].

Innovation represents a strategic element for the development of agricultural and rural systems. Innovative solutions are no longer chiefly derived from technological progress, as was the case during the modernization of agriculture, but are also the fruit of new methods of organizing and managing processes and information within and between sectors; within territories and between them. Innovation is also identifiable in the reintroduction of elements, spaces, and people into different positions, integrated in renewed relational strategies [36].

The spreading of organic farmers and initiatives of sustainable rural development are both crucial processes underway in many agricultural areas. They often occur in the same areas and involve the same actors, inevitably weaving interesting bonds, which, so far, have not been extensively investigated.

This paper claims that a composite and promising relationship links organic farming to sustainable rural development. The analysis proposed is intended to be indicative rather than

exhaustive that could inspire new illuminating research work.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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