

## STUDY REGARDING ORGANIC AGRICULTURE AND CERTIFICATION OF PRODUCTS

**Paula Ionela NASTASE, Maria TOADER**

University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd,  
District 1, 011464, Bucharest, Romania

Corresponding author email: nastase\_paula23@yahoo.com

### **Abstract**

*In this paper, authors collective present statistical data provided by various organizations and institutions involved in organic agriculture movements in the world and in Romania, in order to characterize the particularities of organic farms and organic products certification. Organic agriculture is an integral part of sustainable development strategies and as a viable alternative to conventional agriculture. At the end of 2013, the total organic area in the world means 43.1 million ha and there are approximately two million organic farmers. The commerce of organic food sells 60 billion dollars every year. In Romania, it were recorded a surface of over 288 thou ha in 2014 and around 15,000 operators. Each EU Member State accredits certification and inspection bodies for control of organic farms and products. In this context, the farm/unit also is inspected at least once a year to ensure that you meet the EU-wide organic standards. Only then can products legally be labelled and marketed as "organic". The EU organic logo and labelling is a quick and simple way for consumers to recognise organic produce, and an important step in guaranteeing that organic produce is always of the same high standards. According to last research performer by EU, more than 70% of Europeans say they trust organic products. However, nearly 60% of them would favour an improvement of the control system. Consumer trust is about more than just quality. It's also about protecting the environment, providing good conditions for animals, and boosting rural development.*

**Key words:** organic farms, certification, food quality, consumer's behaviours.

### **INTRODUCTION**

Organic production systems are based on specific standards specifically formulated for food production and aims to produce them in a sustainable way both in terms of social and material. This system should be regarded as an integral part of sustainable development strategies and as a viable alternative to conventional agriculture.

The organic production method plays a dual societal role, because on the one hand provides for a specific market responding to consumer demand for organic products, and on the other hand delivers public goods contributing to environmental protection and animal welfare and rural development ([www.ec.europa.eu](http://www.ec.europa.eu)).

Organic farming is one of the broad spectrums of production methods which supports and protects the environment (Behera et. al., 2011). Demand for organic products is growing in both developed countries and developing countries, with an average annual growth of 20-25%. At the end of 2013, the total area means 43.1 million ha. According to a United

Nations Conference on Trade and Development (UNCTAD, 2013), nowadays there are approximately two million organic farmers, about 80% of them in developing countries.

Organic production aims to be free of pollutants and substances not allowed in organic production such as GMOs, pesticides and fertilizers, by not using these substances for environmental and health reasons. However, focusing on threshold levels as a key organic certification tool would undermine both the organic principles and process quality approach of inspection and certification in organic production (IFOAM EU Group, 2014). Farmer, grower, food processor, storage provider and/or an importer of organic food from a non-European Union (EU) country, or trader of organic products must registered with an approved organic inspection and certification bodies. Organic farmers, processors and traders, must comply with strict EU requirements if they want to use the EU organic logo or label their products as "organic". In this context, the farm/unit also be inspected at least once a year to ensure that you

meet the EU-wide organic standards. Only then can products legally be labelled and marketed as “organic”.

Farm products under conversion are grown without chemicals, but the land where they grow still has to be cleaned up of the previously used pesticides and fertilizers; the ecological certification is possible only after a conversion period of 2 or 3 years.

The prices of the products in the conversion process are approximately 5 percent higher than in conventional farming, while organic certificated products further add 5 to 10 percent.

The EU organic logo and labelling is a quick and simple way for consumers to recognise organic produce, and an important step in guaranteeing that organic produce is always of the same high standards.

According to last research performer by EU, more than 70% of Europeans say they trust organic products. However, nearly 60 % of them would favour an improvement of the control system. Consumer trust is about more than just quality. It's also about protecting the environment, providing good conditions for animals, and boosting rural development.

## MATERIALS AND METHODS

In order to characterize the particularities of organic farms and organic products certification it used statistical data provided by various organizations and institutions involved in organic agriculture movements in the world and in Romania. The data presented were selected from journals, scientific articles, statistical data collections, legislation and media information regarding organic agriculture.

Also studied data on the organic products and monitoring reports of pesticide residues carried out international level by the laboratory for residues control of pesticides in plants and plant products.

The data have been processed into the following indicators: organic surfaces and crops, mains countries involved in organic agriculture, organic market size, consumers attitude and different reports regarding pesticide residues of yield.

## RESULTS AND DISCUSSIONS

**Statistical data.** Organic farming undoubtedly is one of the fastest growing sectors of agricultural production. Lately, organic farming has grown rapidly globally, being practiced in over 164 countries and organically cultivated areas are increasing (Willer, 2016).

Australia is the country with the largest organic agricultural area (17.2 million hectares, with 97% of that area used as grazing), followed by Argentina (3.2 million hectares) and the United States of America (2.2 million hectares) (Figure 1).

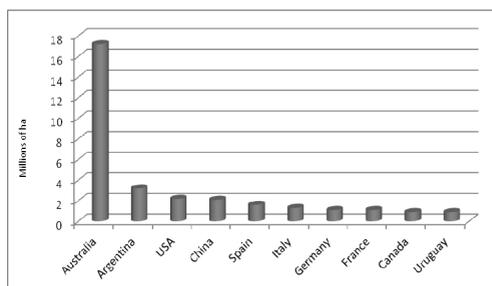


Figure 1. Organic surface by countries, in 2013 (FiBl and IFOAM, 2016)

40% of the global organic agricultural land is in Oceania (17.3 million hectares), followed by Europe (27%; 11.5 million hectares), and Latin America (15%; 6.6 million hectares) (Figure 2).

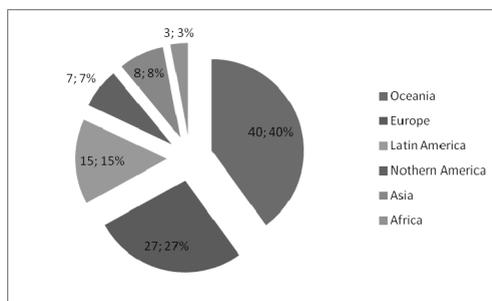


Figure 2. Percentages of organic surface by continents, in 2013 (FiBl and IFOAM, 2016)

According to a United Nations Conference on Trade and Development (UNCTAD, 2013), nowadays there are approximately two million organic farmers, about 80% of them in developing countries. The commerce of organic food sells 60 billion dollars every year.

Organic retail sales value by countries in 2013 is present in figure 3. Main market country is USA with 26.7 billion \$, followed of Germany with 8.3 billion \$ and France with 4.8 billion \$.

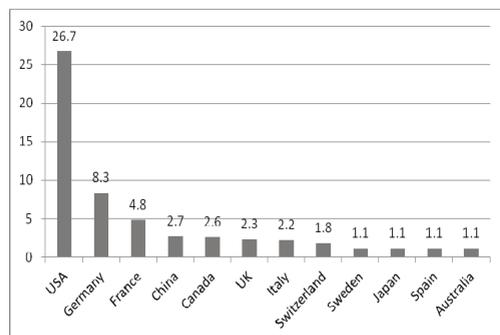


Figure 3. Organic retail sales value by countries, in 2013 (FiBI and IFOAM, 2016)

In Romania, it were recorded a surface of over 288 thou ha in 2014 and around of 15,000 operators (Figures 4 and 5).

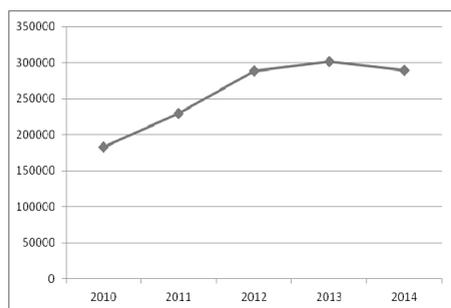


Figure 4. Evolution of organic area in Romania (MARD, 2016)

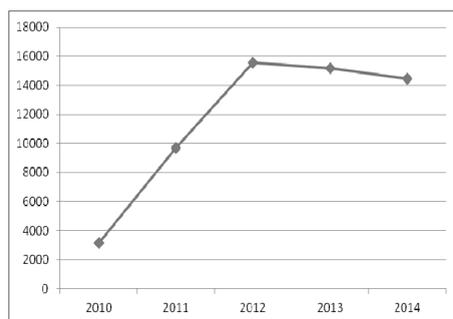


Figure 5. Evolution of organic operators in Romania (MARD, 2016)

The most important crops are cereals (105 thou ha) and oil seeds (45 thou ha) (Table 1).

Table 1. Surfaces of organic mains crops in Romania (MARD, 2016)

Species	2011	2012	2013
Berries	240.0	327.0	327.0
Cereals	79,167.0	105,148.0	105,148.0
Dried pulses and protein crops for the production of grain	3,147.0	2,764.0	2,764.0
Grapes	842.0	1,649.0	1,649.0
Industrial crops	2.0	112.0	112.0
Nuts	184.0	597.0	597.0
Oilseeds	46,046.0	43,923.0	43,923.0
Root crops	1,075.0	1,125.0	1,125.0
Strawberries	3.0	3.0	3.0
Tobacco	29.0	1.0	1.0

In 2013, the trade with organic products in Romania was around 80 mil. Euros for imports and 120 mil. Euros for exports (MARD, 2016).

#### Certification of organic farms and products.

Regarding certification of organic farms, European Union (EU) standards cover crop, livestock and processing. Farm and handling plans are required, as well as detailed record keeping and detailed livestock feed standards. Specific standards are included for aquaculture, seaweed, yeast, bees, and mushrooms (Global Organic Trade Guide, 2015).

Each EU Member State accredits certification bodies. The EU requires an equally strict control system with checks carried out at every stage of the organic chain. Every operator (farmer, processor, trader, importer or exporter) is checked at least once a year, or more often on the basis of risk assessment.

In addition to the European Commission organic regulations for certification and accreditation procedures, the requirements of EN 45011 and ISO Guide 65 for accreditation must be met.

The name or code number of the control authority or body in the EU which checked the operator should also be on the label.

In Romania, monitoring and certification of organic products is currently provided by private certification and inspection bodies. They are approved by the Ministry of Agriculture, Forestry and Rural Development, based on criteria of independence, impartiality and competence established by Order No.

181/2012, approving the „Rules of organizing the inspection and certification system, approval of the certification and inspection bodies, surveillance of control body’s activity”. MARD’s approval of inspection and certification bodies is preceded mandatory by their accreditation in accordance to European standard EN ISO 45011, issued by a competent body for this purpose.

In Romania, in 2016, 14 of inspection and certification bodies are operating, approved by MARD to conduct the inspection and certification of organic products.

In Romania, according to organic legislation (EC Regulations 834/2007 and 889/2008), the operators before beginning their activity must register at the County Agriculture Departments from the area where they operate, by filling in the standardized registration in organic agriculture. He must choose and contact an Inspection and Certification Body approved by MARD and sign with them a contract for inspection and/or certification of the farm in the purpose of compliance with the legislation on organic production control. The organic surfaces must be separated from the conventional surfaces used into by access roads, irrigation canals, shelterbelts; the crop does not require herbicide or other treatment of plant protection and must be known its history of diseases, pests and weeds specific for the area. Growing, in organic farming, a different crops or varieties from other crops managed at the farm in a conventional system. Use of certified organic seed or, if it is not on the market such seed, it is used untreated seed, only with the approval of inspection and certification bodies. Any inputs must be approved prior, by the inspection and certification bodies. During conversion period, obtained products cannot be sold as organic. In compliance with EU Regulations, is permissible to use the logo and marketing since two years for annual crops and three year for the perennial.

**Behaviour of consumers.** Regarding the attitude of consumers, they searching for organic food on the market. According to studies, the people who buy organic food are mainly women, families with children and the elderly (Hughner et al., 2007). These groups are linked mainly by their concern for their

own or their relatives’ health, due to a particular physiological condition and the associated awareness of the importance of healthcare.

Hughner et al. (2007) also mentioned the reasons why consumers are interested in the purchase of organic products. A key motive, given by many consumers of organic food – both so-called ‘regular’ and ‘occasional’ ones – as the most important, is concern about health, i.e. the conviction that organic products are healthier and safer than conventional ones

On the other hand, comparisons between organic and conventional products are usually inconclusive. The cultivation procedure and the location where the planting is done are factors commonly more important than the cultivation system. This theme is one of the most common ones in different studies on organic markets and production (Guthman, 2008; Lotter, 2003; Siderer et al., 2005; Torjusen et al., 2001).

The evidences of significant environmental improvement due to the organic agriculture are truly huge. The pesticides were practically vanished and the pollution caused by nutrients was drastically reduced. Erosion and biodiversity losses were reduced, as well as the use of water and fossil fuel. These changes diminished the impacts related to global warming in comparison to conventional agricultural systems (Lotter, 2003).

Matt et al. in the Report about Quality of Organic vs. Conventional Food and Effects on Health (2011) stressed that surveyed consumers mentioned such organic food characteristics as: better taste (sensory properties), care for the natural environment, greater food safety, animal welfare, social factors (supporting local market and traditions). To sum-up, consumers prefer organic food for its greater nutritional value, its better taste, its safety for health, and because its production does not endanger the environment (Matt et al., 2011).

Also, this report find out what restrictions exist on pesticides, fertilisers, and antibiotics and how organic farmers create good quality produce through crop rotations and cultivating in season. Only half of Europeans know that all organic operators must be controlled at least once per year. Discover the control process from start to finish. Organic farming means that

the time and distance from the farm to kitchen is greatly reduced (<http://ec.europa.eu>).

Organic foods, which feature production methods that reject synthetic materials and compounds, have gained a fair amount of media attention in recent years, and with good reason: they are popular with 40% of survey respondents, particularly shoppers in Asia Pacific where 47% said they buy organic, Latin America at 45% and Middle East/Africa/Pakistan at 43%. North America falls well below the global average, with only 24% of consumers saying they actively buy organic. Thirty-five percent of Europeans say they actively buy organic products (Nielsen Global Online Survey, 2011).

People prefer organics for a host of reasons, including: the belief that they are healthier, pesticide-free, more nutritious, environmentally-friendly, taste better, not genetically-modified (GMO), supportive of small farmers and rural communities, the right thing to do ethically, and a vote against modern farming methods (Matt et al., 2011) (Figure 6).

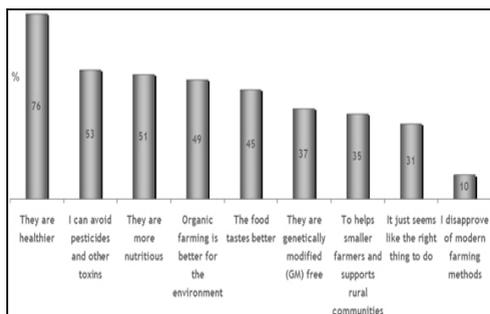


Figure 6. Reasons consumers buy organic products (The Nielsen Company, Global Online survey, 2011)

Growth in the market can be attributed to growing health concerns among consumers and increasing awareness with regard to health benefits of organic food. Other factors driving organic food sales across the globe include increasing income levels, improving standard of living, and government initiatives aimed at encouraging widespread adoption of organic products. Consumers across the globe are becoming increasingly health conscious, which has resulted in a change in their tastes and preferences. A growing number of consumers are moving towards consumption of organic food in place of conventional food, to avoid

adverse health effects caused by chemical preservatives or genetically modified ingredients present in inorganic food. Moreover, the increasing popularity of organic products has significantly expanded the availability of organic food across the globe. With organic food becoming easily accessible, global organic food market is expected to witness remarkable growth over the forecast period (Nielsen Global Online Survey, 2011).

**Residues in organic products.** In the scientific literature on pesticide residues in organic foods, evidence indicates that conventional foods are more likely than organic foods to contain (single and multiple) synthetic pesticide residues (Smith-Spangler et al., 2012). An annual monitoring report of European Food Safety Authority (EFSA) found traces of pesticides in organic food products, challenging public perceptions that organic products are free of synthetic plant protection products. Maximum Residue Levels (MRLs) are generally-acceptable limits of pesticide deposits, which remain after fruit or vegetables are cleaned up and above which consumption in large quantities could present a risk for human health. The control activities related to pesticide residues in food carried out in 2011, in 27 Member States. 4,117 organically produced food products (5.8% of the total number of samples) were analysed by the reporting countries except Bulgaria, Hungary and Iceland. Compared to conventionally grown food products, for organic samples a lower MRL exceedance rate was observed 0.5% for organic products versus 2.6% for conventional products. The presence of synthetic pesticides in organic food may arise from environmental pollution. Although organic farming does not permit the use of synthetic pesticides, it can involve the use of a limited number of biopesticides, which are types of pest management interventions based on micro-organisms or natural products (e.g. copper, sulphur).

In Romania, recent survey by Mednet Marketing Research Center (2015) shows that only a third of respondents trust bio products as being healthier than conventional ones, half of them consider them expensive and a quarter believe that everything is a marketing invention. However, once they get over this

barrier, Romanians tend to choose imported brands, rather than local ones. Over 60% of consumers associate a organic product with a “product that does not harm in any way the environment” and a “product that contains no chemicals, E and artificial additives”.

## CONCLUSIONS

Organic agriculture is an integral part of sustainable development strategies and as a viable alternative to conventional agriculture.

At the end of 2013, the total organic area in the world means 43.1 million ha and there are approximately two million organic farmers.

The commerce of organic food sells 60 billion dollars every year.

In Romania, it were recorded a surface of over 288 thou ha in 2014 and around of 15,000 operators.

Each EU Member State accredits certification and inspection bodies. The EU requires an equally strict control system with checks carried out at every stage of the organic chain.

Every operator (farmer, processor, trader, importer or exporter) is checked at least once a year, or more often on the basis of risk assessment.

Organic farmers, processors and traders, must comply with strict EU requirements if they want to use the EU organic logo or label their products as “organic”.

According to various reports, consumers mentioned such organic food characteristics as: better taste (sensory properties), care for the natural environment, greater food safety, animal welfare, social factors (supporting local market and traditions).

Consumers prefer organic food for its greater nutritional value, its better taste, its safety for health, and because its production does not endanger the environment.

In 2011, in 27 Member States, from 4,117 organic food samples (5.8% of the total number of samples) was observed only 0.5% present the pesticides residues versus 2.6% for conventional products).

## REFERENCES

Behera K.K., Afram A., Vats S., Sharma H., Shrama V., 2011. Organic farming hystory and techniques. Chapter Agroecology and Strategies for Climate

Change. Vol. 8 of the series Sustainable Agriculture Reviews pp 287-328.

Guthman J., 1998. Regulating meaning, appropriating nature: The codification of California organic agriculture. *Antipode*, v. 30, n. 2, p. 135.

Guthman J., 2007. The polanyian way? Voluntary food labels as neoliberal governance. *Antipode*, v. 39, n. 3, p. 456-478.

Lotter D., 2003. Organic Agriculture. [http://donlotter.net/lotter\\_organicag.pdf](http://donlotter.net/lotter_organicag.pdf).

Hughner R. S., McDonagh P., Prothero A., Shultz II C. J., Stanton J., 2003. Who are organic food consumers? A compilation and review of why people purchase organic food. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.465.8479&rep=rep1&type=pdf>.

Matt D., Rembalkowska E., Luik A., Peetsmann E., Pehme S., 2011. Quality of Organic vs. Conventional Food and Effects on Health. Report of Estonian University of Life Sciences

Morgera E., Caro Bullon C., Duran M.G., 2012. Organic agriculture and the law. Report of FAO Legal Office.

Siderer Y. Maquet A. Anklamb, E., 2005. Need for research to support consumer confidence in the growing organic food market. *Trends in Food Science & Technology*, v. 16, n. 8, p. 332-343.

Smith-Spangler C., Brandeau M.L., Hunter G.E., Bavinger C., Pearson M., Eschbach P.J., Sundaram V., Liu H., Schirmer P., Stave C., Olkin I., Bravata D.M., 2012. Are Organic Foods Safer or Healthier Than Conventional Alternatives? *Annals of Internal Medicine* 157:348-U112.

Torjusen H. et al., 2001. Food system orientation and quality perception among consumers and producers of organic food in Hedmark County, Norway. *Food Quality and Preference*, v. 12, n.3, p. 207-216.

Willer H., Lernoud J., 2015. Organic Agriculture Worldwide: Current Statistics. <https://www.fibl.org/fileadmin/documents/de/news/2014/willer-2014-global-data.pdf>.

EFSA, 2011. The 2009 European Union report on pesticide residues in food. *The EFSA Journal* 9:2430.

The Nielsen Company, Global Online survey, 2010. <http://www.freshplaza.com/article/143213/Romania-Organic-food-sales-less-than-0.5-procent>

[www.ec.europa.eu-agriculture/evaluation/market-and-income-reports/2013/organic-farming/chap13\\_en.pdf](http://www.ec.europa.eu-agriculture/evaluation/market-and-income-reports/2013/organic-farming/chap13_en.pdf).

<http://www.romednet.com/pagini.php?id=30&limba=en>.

United Nations Conference on Trade and Development, 2013. [http://unctad.org/en/PublicationsLibrary/tdr2013\\_en.pdf](http://unctad.org/en/PublicationsLibrary/tdr2013_en.pdf)

[www.madr.ro](http://www.madr.ro), 2016.

<http://www.fibl.org/en/homepage.html>

<http://www.ifoam.bio/>

[http://www.globalorganictrade.com/market\\_reports.php](http://www.globalorganictrade.com/market_reports.php)