ORGANIC FARMING IN NORTH MACEDONIA, BULGARIA, SERBIA AND CROATIA

Erasmus+

Organic
Agriculture
Innovation
Platform

ORGANIC FARMING IN NORTH MACEDONIA, BULGARIA, SERBIA AND CROATIA

SKOPJE, 2020

Authors:

Slagjan Penev, Forum CSRD, North Macedonia
Atana Grbić Martinović, Eko-Zadar, Croatia
Marija Sapundzia, Good Earth, North Macedonia
Prof. Snezana Oljaca, PhD, University of Belgrade, Serbia Organica, Serbia
Aleksandar Ilchev, Bulgarian School of Politics "Dimitry Panitza", Bulgaria
Frosina Trajanovska, Macedonia Export, North Macedonia

Associates:
Cvetanka Mihajlovska, Forum CSRD
Nives Rogožnica, Eko-Zadar
Linda Susterstic, Eko-Zadar
Ivana Simic, Serbia Organica
Team of Good Earth

Graphic design: Tomislav Avrosievski

Forum CSRD
Bul. Partizanski odredi, 6 /mezanin
1000 Skopje, North Macedonia

www.forum-csrd.org.mk

e-mail: forumcsrd@forum-csrd.org.mk
telephone: +3892312100

With the support of the Erasmus+ Programme of the European Union

This project has been funded with support from the European Commission. This baseline study reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

List of Abbreviations and Acronyms

OAIP	Organic Agriculture Innovation Platform
OA	Organic Agriculture
OF	Organic Farming
CSO	Civic Society Organisation
WHO	World Health Organisation
IFOAM	International Federation of Organic Agriculture Movements
EU	European Union
MAFWE	Ministry of Agriculture, Forestry and Water Economy
FNAB	Fédération Nationale d'Agriculture Biologique
FIBL	Research Institute of Organic Agriculture (German: Forschungsinstitut für biologischen Landbau)
IMO	Institute for Market Ecology, Switzerland
SIPPO	Swiss Import Program
BBCS	Balkan BioCert Skopje
FAO	Food and agriculture Organization of the United Nations
SSO	State Statistical Office
FACE	Foundation Agro-Centre Education
IPARD	Instrument for Pre-Accession Assistance for Rural Development
COP	Chamber of Organic Producers
ISTA	International Seed Testing Association
GMO	Genetically Modified Organism
UAA	Utilised Agricultural Area
PAAFRD	Paying Agency for Agriculture, Fisheries and Rural Development
CAP	Common Agricultural Policy
MAFF	Ministry of Agriculture, Food and Forestry
MAFWM	Ministry of Agriculture, Forestry and Water Management

CONTENTS

1. PROJECT OVERVIEW

Organic Agriculture Innovation Platform is a project funded by the European Commission's Erasmus+ Programme (Key Action 2 - KA 204 - Strategic partnerships for adult education) and it brings organizations from different countries partnering together to develop new innovative resources to the benefit of the citizens, more specifically farmers, adult education providers and local CSOs working in the field of agriculture and environment. Educating adults about organic food production is the focus of this partnership project. Forum CSRD is the lead organization partnering with Serbia Organica (Serbia), Eko Zadar (Croatia), Bulgarian School of Politica "Dimitry Panitza", Macedonia Export (North Macedonia) and Good Earth (North Macedonia).

This research of the current situation with organic farming in all of the countries will serve as a ground for providing a wide range of practical knowledge for organic farmers and adult trainers that will help to improve farming practices, as well as to focus more on marketing, branding and promotion of products.

2. EXECUTIVE SUMMARY

With increasing awareness about the benefits of consuming organic, more and more efforts are being observed in the development of organic agriculture in the region. More organic producers are increasingly active in development and promotion of organic methods of production.

Apart from Croatia that has 6.9% organic land, which is little below EU's average (7.5%), Bulgaria has 2.6%, Serbia has 0.55% and North Macedonia is last with 0.35% of total area under organic farming.

With the rapid growth of organic production worldwide, our research indicates a strong potential for development of organic production in the region.

But, there are challenges that need to be addressed.

One of the major challenges in organic agriculture in the region is lack of knowledge, proper preparations, certified seeds. Another factor is the lack of placement of these products, access to markets and promotion of products. Namely, the price of organic products is twice as high, therefore if there is no secured market, it is completely unprofitable.

The study provides an overview of the state of organic farming in North Macedonia, Serbia, Bulgaria and Croatia. It contains the latest statistic on the organic agriculture in the region and comparative analysis between countries.

On the basis of this research, we recommend creating and implementing new national policies for development of organic agriculture, setting systematic technical support and training systems for organic farmers on local level, leasing state-owned agricultural land and subsidizing young farmers and give preference to organic producers, putting more emphasis on marketing and promotional activities for organic products and organic lifestyle and helping farmers to increase their land productivity and also motivate conventional farmers to convert to organic.

Methodology

The basic methodology used was guided by the need for determination of the potential for development and expanding of organic agriculture in the targeted countries.

The following was undertaken:

- Review of the available documents related with organic farming in all four targeted countries;
- Field visit to organic farms, organic producers and companies;
- Interviews with the Ministries of Agriculture, producer groups (farmers, companies), CSOs, local institutions and agencies.

3. INTRODUCTION

3.1 WHAT IS ORGANIC FARMING?

"Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasises the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system." (FAO/WHO Codex Alimentarius Commission, 1999).

There are many explanations and definitions for organic agriculture, but all converge to state that it is a system that relies on ecosystem management rather than external agricultural inputs. It is a system that begins to consider potential environmental and social impacts by eliminating the use of synthetic inputs, such as synthetic fertilizers and pesticides, veterinary drugs, genetically modified seeds and breeds, preservatives, additives and irradiation. These are replaced with site-specific management practices that maintain and increase long-term soil fertility and prevent pest and diseases. Organic food is manufactured in a strictly controlled manner in order to protect human health and the environment. Organic products are grown on unpolluted soil and produced by methods that are not harmful to human health, the environment and

natural balance. The way organic food is produced is legally regulated and regularly monitored to ensure that the products are safe and free of harmful substances. This makes them healthier and more nutritious. The organic way of food production and processing gives preference to the use of naturally occurring materials and products.

Organic agriculture systems and products are not always certified and are referred to as "non-certified organic agriculture or products". This excludes agriculture systems that do not use synthetic inputs by default (e.g. systems that lack soil building practices and degrade land).

Three different driving forces can be identified for organic agriculture:

- **Consumer or market-driven organic agriculture**. Products are clearly identified through certification and labelling. Consumers take a conscious decision on how their food is produced, processed, handled and marketed. The consumer therefore has a strong influence over organic production.
- **Service-driven organic agriculture.** In countries such as in the European Union (EU), subsidies for organic agriculture are available to generate environmental goods and services, such as reducing groundwater pollution or creating a more biologically diverse landscape.
- **Farmer-driven organic agriculture.** Some farmers believe that conventional agriculture is unsustainable and have developed alternative modes of production to improve their family health, farm economies and/or self-reliance. In many developing countries, organic agriculture is adopted as a method to improve household food security or to achieve a reduction of input costs. Produce is not necessarily sold on the market or is sold without a price distinction as it is not certified. In developed countries, small farmers are increasingly developing direct channels to deliver non-certified organic produce to consumers. In the United States of America (USA), farmers marketing small quantities of organic products are formally exempt from certification.[1]

Organic farming is important from the aspect of environmental protection, biodiversity, soil conservation and soil fertility, animal health and consumers' protection.

Principles of organic agriculture[2]:

1. Principle of Health
2. Principle of Ecology
3. Principle of Fairness
4. Principle of Care

1 http://www.fao.org/organicag/oa-faq/oa-faq1/en/
2 https://www.ifoam.bio/en/organic-landmarks/principles-organic-agriculture

These principles are the roots from which organic agriculture grows and develops. They express the contribution that organic agriculture can make to the world. Composed as inter-connected ethical principles to inspire the organic movement in its full diversity, they guide our development of positions, programs and standards.

3.2 HISTORY OF ORGANIC FARMING

The beginning of organic farming could trace back to 1924 in Germany with Rudolf Steiner's course on Social Scientific Basis of Agricultural Development, in which this theory considered the human being as part and parcel of a cosmic equilibrium that one must understand in order to live in harmony with the environment. Pfeiffer has applied these theories to agriculture and gave birth to biodynamic agriculture (Kahnt 1986). It was developed at the end of 1920s in Germany, Switzerland, England, Denmark and the Netherlands. (Herrman and Polakolm 1991, Kahnt 1986)[3]

Sir Albert Howard was the founder of the organic farming movement. His book An Agricultural Testament summarized his research works of 25 years at Indore in India, where he developed the famed Indore composting process which put the ancient art of composting on a firm scientific basis and explained the relationship between the health of the soil, the health of plants and the health of animals (Du and Wang 2001). Rodale. J. I. began his research and practice on organic farming in the USA. His primary goas was to develop and demonstrate practical methods of rebuilding natural soil fertility. By 1942, he published the magazine Organic Gardening (Coleman 1989).

Era of Development (1970–1990)

The research and practice of organic agriculture expanded worldwide after the 1960s. In particular, the expansion and dual polarity of organic agriculture started with the oil crisis of 1973 and the growing sensitivity to agro-ecological issues. This was a time of new ideas, significant sociological transformations, protest movements and the proliferation of alternative life styles. The new thoughts in terms of using natural resources rationally, protecting the environment, realizing low input and high efficiency, ensuring food security, returning to the earth and maintaining a sustainable development of agriculture, such as organic, organic-biological, biodynamic, ecological, and natural agriculture were remarkably developed in their concept research and practical activities (Herrmann and Plakolm 1991).

William Albrecht gave a definition of ecological agriculture in 1970, in which the ecological principle was introduced to the production system of organic agriculture (Coleman 1989). In England the Soil Association created a logo and in parallel introduced the notion of legally formulated specifications and quality controls that gave a legally

3 https://serbiaorganica.info/en/organic-production-and-principles/

binding guarantee for the consumers (Yussefi and Willer 2003; Soil Association 2001). The largest non-governmental organization of organic agriculture in the world, IFOAM (Global organic) was founded in 1972. The major organic agriculture association and research institutions in the world such as FNAB (Federation Nationaled' Agriculteurs Biologiques) and FiBL (For Schungs Institute Fuer Biologischen Landbau), now the largest organic research institute worldwide were founded during 1970s-1980s (Greene 2001). These organizations played an important role in standardizing the production and market of organic products and promoting research and consumer's awareness.

Era of growth (since 1990)

The organic farming worldwide entered a new stage of growth in the 1990s. The trade organizations for organic products were founded, organic farming regulations were implemented and organic farming movement was promoted by both governmental and nongovernmental organizations. In 1990 the first BioFach fair, now the biggest trade fair for organic products worldwide, was organized in Germany (ITC 1999). IFOAM and the Food and Agriculture Organization of the United Nations set out Guidelines for the Production, Processing, Labeling and Marketing of Organically Produced Foods in 1999. This guide line is of importance to international harmonization of the organic farming and standards (FAO and WHO 2001). Organic farming had rapidly developed worldwide during this stage. The main drivers of steady market and production growth were the commitment of many retail chains as well as favorable policy conditions. The rapid growth of organic farming at global scale started during the end part of twentieth century, several trade organizations were founded, regulations were implemented and movements were promoted by both governmental and nongovernmental organizations. This led to rapid development of organic farming with coordinate and rational approach.

3.3. REGULATION

EU Law on organic production

In 2007 the European Council of Agricultural Ministers[4] agreed on a Council Regulation (EC) No. 834/2007 setting out the principles, aims and overarching rules of organic production and defining how organic products were to be labelled.

The regulation set a new course for developing organic farming further, with the following aims[5]:

- sustainable cultivation systems
- a variety of high-quality products
- greater emphasis on environmental protection
- more attention to biodiversity
- higher standards of animal protection
- consumer confidence
- protecting consumer interests

Organic production respects natural systems and cycles. Biological and mechanical production processes and land-related production should be used to achieve sustainability, without having recourse to genetically modified organisms (GMOs).

In organic farming, closed cycles using internal resources and inputs are preferred to open cycles based on external resources. If the latter are used, they should be organic materials from other organic farms natural substances materials obtained naturally, or mineral fertilisers with low solubility.

Exceptionally, however, synthetic resources and inputs may be permissible if there are no suitable alternatives. Such products, which must be scrutinised by the Commission and EU countries before authorisation, are listed in the annexes to the implementing regulation[6] (Commission Regulation (EC) No. 889/2008).

Importing organic products[7]

Organic products from non-EU countries can be distributed on the EU market only if produced and inspected under conditions that are identical or equivalent to those applying to EU organic producers. The rules introduced by the 2007 regulation are more flexible than the previous set-up, under which organic goods could be imported from outside the EU only if they were EU-certified, their production was monitored by the EU countries and an import licence had been issued.

The import licence procedure has been replaced by new import rules. Control bodies (Certifying organisations) operating in non-EU countries are now directly authorised and monitored by the European Commission and EU countries.

This allows the EU Commission to supervise and monitor the import of organic products and the checks carried out on organic guarantees. The new legislation also lays the foundation for EU rules on organic produce including wine, aquaculture products and seaweed.

4 https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/legislation_en
5 https://www.foodchainid.com/certification/eu-organic/
6 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2008.250.01.0001.01.ENG
7 https://www.bioagricert.org/en/certification/organic-production/european-union/import.html

3.4 ORGANIC CERTIFICATION

Certified organic products are those which have been produced, stored, processed, handled and marketed in accordance with precise technical specifications (standards) and certified as "organic" by a certification body. Once conformity with organic standards has been verified by a certification body, the product is afforded a label. This label will differ depending on the certification body but can be taken as an assurance that the essential elements constituting an "organic" product have been met from the farm to the market. It is important to note that an organic label applies to the production process, ensuring that the product has been produced and processed in an ecologically sound manner. The organic label is therefore a production process claim as opposed to a product quality claim.

Organic product

Organic food is the product of a farming system which avoids the use of man-made fertilizers; pesticides; growth regulators and livestock feed additives. Irradiation and the use of genetically modified organisms (GMOs) or products produced from or by GMOs are generally prohibited by organic legislation.

All organic food is fully traceable from farm to fork, so you can be sure of what you're eating. The standards for organic food are laid down in laws so any food labelled as organic must meet strict rules. Unlike non-organic food production, which makes wide use of manufactured and mined fertilizers and pesticides, organic food is produced with natural fertilizers from plants, less energy and more respect for the animals that provide it. Organic farming and food production is not easy and takes real commitment and attention to detail, and is backed up by rigorous, independent inspection and certification.

Benefits of organic food:

- Organic produce contains fewer pesticides
- Organic food is often fresher because it doesn't contain preservatives that make it last longer
- Organic farming is better for the environment
- Organically raised animals are NOT given antibiotics, growth hormones, or fed animal byproducts.

3.5 LABELLING

Foods may be labelled "organic" only if at least 95% of their agricultural ingredients meet the necessary standards. In non-organic foods, any ingredients which meet organic standards can be listed as organic. To ensure credibility, the code number of the certifying organization must be provided.

Organic production outlaws the use of genetically modified organisms and derived products. However, the regulation on genetically modified food and feed[8] lays down a threshold (0.9%) under which a product's GMO content does not have to be indicated. Products with GMO content below this threshold can be labelled organic.

The EU organic logo

The organic logo[9] gives a coherent visual identity to EU produced organic products sold in the EU. This makes it easier for EU based consumers to identify organic products and helps farmers to market them across all EU countries.

The organic logo can only be used on products that have been certified as organic by an authorised control agency or body. This means that they have fulfilled strict conditions on how they are produced, transported and stored.

3.6 ORGANIC FARMING IN EUROPE

Organic agriculture has developed at a very fast rate in Europe in the past 10 to 15 years. According to a survey conducted by Stiftung Ökologie and Landbau in 1999, 2.3 million hectares were managed organically by 92646 farms in the member states of the EU and the European Free Trade Association. This constituted 1.64 percent of the agricultural land and 1.18 percent of the farms (preliminary figures). There are however, substantial differences between the countries: In Austria 10.1 percent of the area is organic and in

8 https://eur-lex.europa.eu/legal-content/en/ALL/;ELX_SESSIONID=jdtPJ8qLMMgNC9p6DGGkfrw2LSpqVf18vV2G41LjvkGwg-Jyt20zh!1404494154?uri=CELEX:32003R1829
9 https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/organics-glance/organic-logo_en

Liechtenstein it is even 17.7 percent. Portugal on the other hand only has 0.6 percent. The reasons for success of organic farming in the individual countries of Europe are various, depending on the level of individual farm support, the existence of a state or a common logo, the existence of an action plan, the availability of organic products, consumer education, information for farmers/existence of an advisory service and the funding of research and research institutions.[10]

The total organic area[11] in the EU-28[12] was 13.4 million hectares (ha) in 2018 and is still expected to grow in the coming years. The increase in organic area between 2012 and 2018 was 34 %. The total organic area is the sum of the "area under conversion" and the "certified area". Before an area can be certified as "organic", it must undergo a conversion process, which may take 2-3 years depending on the crop[13].

Total organic area (fully converted and under conversion), by country, 2012 and 2018

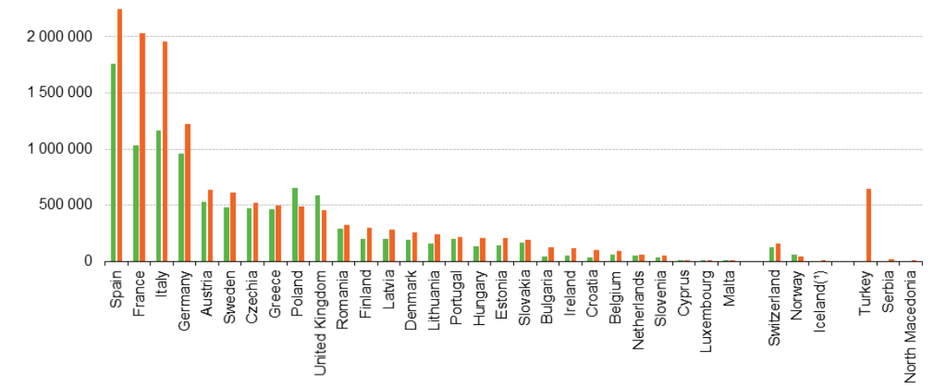
	Organic area (ha)		2012–18
	2012	2018	(% change)
EU-28	10 047 896	13 438 168	33.7
Belgium	59 718	89 025	49.1
Bulgaria	39 138	128 839	229.2
Czechia	468 670	519 910	10.9
Denmark	194 706	256 711	31.8
Germany	959 832	1 221 303	27.2
Estonia	142 065	206 590	45.4
Ireland	52 793	118 699	124.8
Greece	462 618	492 627	6.5
Spain	1 756 548	2 246 475	27.9
France	1 030 881	2 034 115	97.3
Croatia	31 904	103 166	223.4
Italy	1 167 362	1 957 937	67.7
Cyprus	3 923	6 022	53.5
Latvia	195 658	280 383	43.3
Lithuania	156 539	239 691	53.1
Luxembourg	4 130	5 782	40.0
Hungary	130 607	209 382	60.3
Malta	37	47	27.0
Netherlands	48 038	57 904	20.5
Austria	533 230	639 097	19.9
Poland	655 499	484 676	-26.1
Portugal	200 833	213 118	6.1
Romania	288 261	326 260	13.2
Slovenia	35 101	47 848	36.3
Slovakia	164 360	188 986	15.0
Finland	197 751	297 442	50.4
Sweden	477 684	608 754	27.4
United Kingdom	590 011	457 378	-22.5
Norway	55 260	46 377	-16.1
Switzerland	121 013	160 110	32.3
North Macedonia	:	4 408	:
Serbia	:	19 255	:
Turkey	:	646 251	:

Source: Eurostat

10 http://www.fao.org
11 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Organic_area
12 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:EU-28
13 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Organic_farming_statistics#Total_organic_area

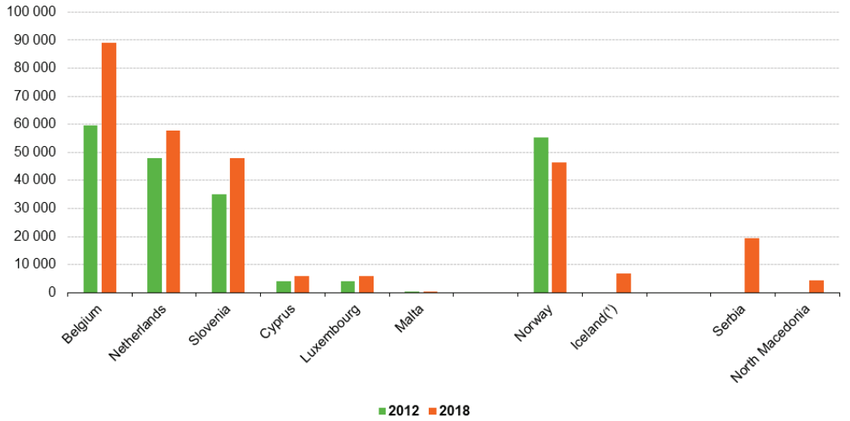
Between 2012 and 2018, Bulgaria, Croatia and Ireland recorded growth in the total organic area of over 100 %. However, two EU Member States reported reductions in the organic area: the United Kingdom (-22.5 %) and Poland (-26.1 %). As shown in Figure 1a, Spain, France and Italy had the three highest total organic areas in terms of hectares (ha) both in 2012 and 2018. Figure 1b illustrates the countries with smaller organic crop areas, below 100 000 ha in 2018.

Figure 1a: Total organic area (fully converted and under conversion), by country, 2012 and 2018 (ha)



Source: Eurostat

Figure 1b: Total organic area (fully converted and under conversion), by country with organic crop areas below 100 000 ha, 2012 and 2018 (ha)

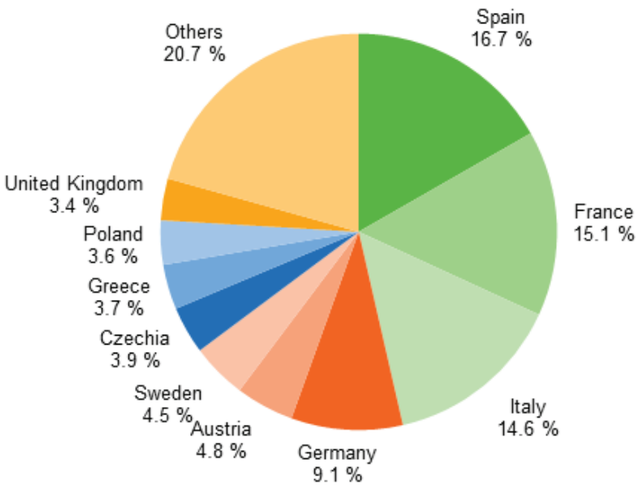


Source: Eurostat

The size of the organic area differs considerably from one EU Member State to another. Four Member States accounted for more than half of all organically farmed land in

2018: Spain (16.7 %), France (15.1 %), Italy (14.6 %) and Germany (9.1 %), together making up 55.5 % of the total EU-28 organic area (see Figure 2). In 2017, these four countries represented a similar share, 54.7 %.

Figure 2: Share of total organic area (fully converted and under conversion), EU-28, 2018 (% of total EU-28),

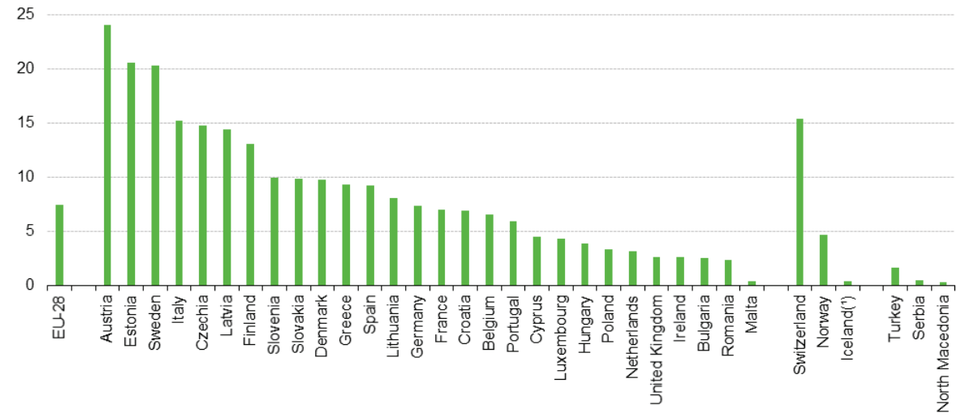


Source: Eurostat

Total organic area made up 7.5 % of total EU-28 UAA in 2018

From 2012 to 2018, the share of total organic area in the total utilised agricultural area (UAA)[14] within the EU rose from 5.6 % to 7.5 %[15]

Figure 3: Share of total organic area (fully converted and under conversion) in total utilised agricultural area (UAA), by country, 2018 (%)



Source: Eurostat

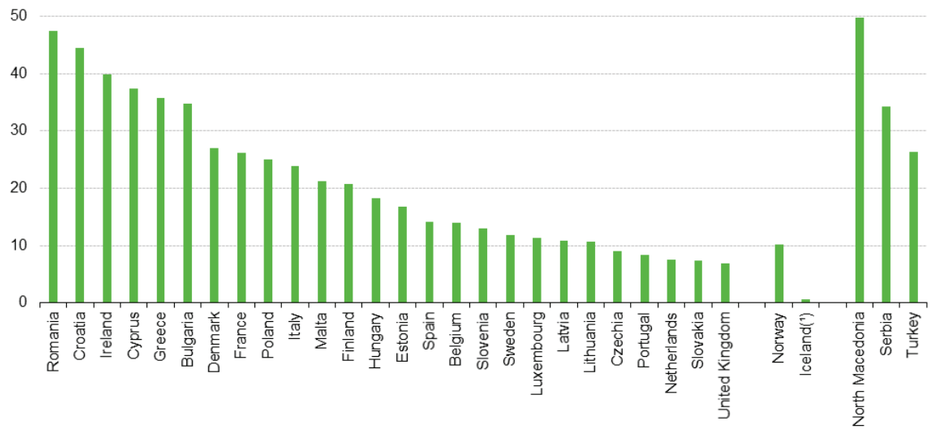
14 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Utilised_agricultural_area_(UAA)
15 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Organic_farming_statistics#cite_note-2

Figure 3 shows the organic crop area as a percentage of the total UAA by country for 2018. In Austria, Estonia and Sweden, the share of organic area was over 20 %, while in Italy, Czechia, Latvia, Finland and Slovenia it was over 10 % of the UAA. In the remaining EU Member States, the share of organic area ranged from 0.4 % in Malta to 9.9 % in Slovakia.

The potential for organic production continued to rise in 2018

Organic production[16] comes from fully converted areas. The area under conversion as a percentage of the total organic area can give an indication of the potential growth in the organic sector in the years to come. In 2018, Czechia, Portugal, the Netherlands, Slovakia and the United Kingdom had a share of less than 10 % under conversion, while nine EU Member States had shares between 10 % and 20 % and twelve exceeded 20 % (see Figure 4).

Figure 4: Share of area under conversion, by country, 2018
(% of total organic area — fully converted and under conversion)



Source: Eurostat

The largest shares of area under conversion in the total organic area were recorded for Romania (47.4 %), Croatia (44.5 %) and Ireland (39.9 %). Romania and Ireland have still only a small share of agricultural land under organic management, below 3 % (Figure 3). Croatia however is close to the EU average with 6.9 % of land under organic management and still shows a positive growth.

16 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Organic_production

4. ORGANIC FARMING IN NORTH MACEDONIA, BULGARIA, SERBIA AND CROATIA

Case studies of existing farming practices and the potentials for development of organic agriculture

4.1 NORTH MACEDONIA

STATUS OF THE ORGANIC FARMING IN NORTH MACEDONIA

The first symbolic activity in the organic sector in North Macedonia was recorded in 1997, when pharmaceutical company ALKALOID AD Skopje requested the first organic certification in the country to sell wild herbs (linden, chamomile) as organic on the national market. In 1998 few farmers from Ohrid, Kumanovo and Strumica started the first organic farming activities. They produced food according to the principles of organic production for predetermined buyers. In 1999, initial expertise was provided to establish a draft legal basis for organic production. In late 2000, the first draft of the Law on Organic Production was completed in consultation with European experts on organic production. The same year were practically carried out the first systematic activities in the field of organic farming in North Macedonia initiated by the FIBL / Swiss Development and Cooperation Project, and later the production of organic persimmons was supported by the Swiss Import Program (SIPPO). In 2001 the Government adopted a draft Law on Organic Production and it has been submitted to parliamentary procedure and the first organic producers' associations were established. The same year started the project in support of "Local Initiatives towards Organic Farming" as part of the Environmental NGO Support Program. In 2003, as a result of the successful completion of the aforementioned environmental project, a decision was made for launching a new project fully dedicated to the development of organic farming. The first inspection of organic production in the country took place the same year, and the first 13 organic farms were inspected. The first Certificate of Organic Production was issued in 2004. In 2006 about 500 hectares in the country were under organic plantations, contributing about 0.4% of the total area under agricultural plantations. In 2007, the control / certification body "Balkan BioCert" received MAFWE authorization for expert control in organic agricultural production in North Macedonia and the second "ProCert" was authorized in 2008. The Macedonian Government adopted the first National Strategy for Organic Agriculture (2008-2011) laying the foundation for further development of organic production in order to reach 4% of arable land by 2020. The Organic Production Law entered into force in 2010. Technical Assistance was provided by FAO in 2012 with the aim of establishing a working group of representatives from the relevant ministries and experts in the organic sector to define the national action plan adopted in 2013 by 2020.[17]

In terms of organic agriculture, which is significantly more complicated than classical production, North Macedonia is last in Europe, as confirmed by Eurostat's 2018 Organic Agriculture Statistics. The reason behind it is mostly because of lack of technical knowledge, proper preparations and certified seeds. Another factor is the lack of placement of these products and access to markets. Namely, the price of organic products is twice as high and therefore if there is no secured market, it is completely unprofitable.

The research, according to processed data on 100% organic land including pastures and meadows, shows that with only 0.35%[18] of total area under organic farming, North Macedonia is well below the EU average of 7.5%. While organic production in the EU continues to grow, we see a decline in North Macedonia. In 2014, only 0.79 % were registered, 0.17 % in 2015, 0.26 % in 2016 and 0.25 % in 2017. According to the State Statistical Office (SSO), however, organic production in 2018 was 3,886 hectares, an increase of 1,000 hectares compared to 2013, when 2,866 hectares were cultivated. Of the total areas under organic production in 2018, 1,134 hectares were fodder crops, 1,078 hectares of cereals, 899 hectares of industry, 526 hectares of fruit, 219 hectares of vegetables and 110 hectares of vineyards.

Vegetables, forage crops and fruits also continue to grow. The largest decline, by one third, was in cereals, which in 2013 represented 1,556 hectares, while in 2018 they were cultivated on 1,078 hectares. Except for barley, where there is a reduction of about 100 hectares, in other crops the cuts are more drastic. Wheat declined the most, with halved areas under organic production, from 465 hectares in 2013 to 199 in 2018. Corn has also declined, though it has shown variations over the years. Drastic decline was recorded in rye, which in 2013 was 31.5 hectares, and in 2018 it was 9.8.

The highest growth of organic crops is recorded from industrial crops, from 131 hectares in 2013 to as much as 900 hectares in 2018. Aromatic, medicinal herbs and spices are actually carriers of them. At the same time, they also have the largest leap, from 56.1 hectares in 2013 to 890 hectares in 2018. Meanwhile, sunflower has seen a sharp decline, from 73 hectares in 2013 to 7.9 hectares in 2018. SSO has no data on tobacco, oilseeds and peanuts.

Areas under organic vegetables have doubled from 2013 to 2018 (from 111.2 to 219.7 hectares). Tomatoes, peppers, cucumbers, cabbages, watermelons…are insignificantly represented, at only 19.6 hectares, while other vegetables account for the remaining 200 hectares or over 90 percent. Organic fruits also show an increase, from 329 hectares in 2013 to 526 hectares in 2018, but growth is steady. The areas under pears, apricots, nuts and almonds have doubled, raspberries show a sharp decline, from 10 to 1.4 hectares. There is a slight decrease in plums, figs and cherries. The growth is seen also in the viticulture, where 41.9 hectares were organically grown in 2013, and in 2018 the area reached 110.6 hectares, which is 70,000 more or 2.5 times more.

There is growth in the organic livestock. The number of heads of sheep dominates with 101,317 in 2018, a rise of over 30,000 compared to 2013, when there were 64,311. In 2018, there are 6,901 goats and 6,390 cattle registered. Both of these categories of livestock show an increase compared to 2013, when there were 2,700 both. The number of organically grown bee families in 2018 was 8,138, which is also an increase by 2,000 compared to 2013, when 6,148 bee families were recorded.[19]

In 2017, 3.57 % of production was organic, which is almost four percent, as projected for 2020. From 2013 to 2017 there is a doubling of animals and bees in organic production. It is encouraging that the number of farmers and producers is growing to 798 at the moment, but it is worrying that organic farms are decreasing, which shows that its

17 https://www.sobranie.mk/content/PI/1.%20%D0%9E%D1%80%D0%B3%D0%B0%D0%BD%D1%81%D0%BA%D0%BE%20%D0%BF%D1%80%D0%BE%D0%B8%D0%B7%D0%B2%D0%BE%D0%B4%D1%81%D1%82%D0%B2%D0%BE%20%D0%B2%D0%BE%20%D0%A0%D0%9C.pdf

18 https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=sdg_02_40&plugin=1

19 https://opserver.mk/biznis/makedonskoto-organsko-zemjodelstvo-daleku-pod-prosekot-na-eu/?utm_source=rss&utm_medium=rss&utm_campaign=makedonskoto-organsko-zemjodelstvo-daleku-pod-prosekot-na-eu

competitiveness is decreasing. The Consumer Organization has pointed to the need of following the latest European regulation on organic production that was adopted in May 2018 and will be implemented from 1 January 2021. The regulation provides for a range of relief for producers, including group certification that will allow lower costs, mixed farms for organic and conventional production, as well as the avoidance of annual controls i.e their implementation every two years.

There is no data how much area from 2012 to 2018 has converted or is in the process of transforming from conventional to organic production.

From 2004 to 2009, the organic farming sector in the country demonstrated consistent growth. During this period, the land under organic agricultural management increased more than seventeen times. Recent data published by Eurostat shows that in 2009, 99 organic farms were counted, an increase of 202 percent compared to 2004. 3,380 hectares of land were organic. In 2009, the organically managed agricultural land was estimated at 0.24% of the total utilized agricultural area (Eurostat 2010). In 2009, the main use of organic agricultural land in the country is permanent grassland 2,273 hectares (67%) followed by arable land 1107 hectares (33%).

This research shows that the largest number of certified organic producers in North Macedonia are men aged 35 to 50 years. Also, most of the organic food producers are high or middle educated in this field.

Organic food production is something new in the Macedonian market and according to the experience of the interviewees it is constantly growing. The fact that there is such a demand has led to the branching of organic products from only fresh fruits and vegetables to the production of dried fruits, juices, flour, pasta, honey, nuts and butter, while the production and consumption of organic oil and oil-containing products are diminishing in line with the worldwide trend of healthy eating, which often eliminates all types of fat.

We talked to some of the organic producers in North Macedonia, including: manufacturer of vegetables and fruits from Skopje, manufacturer of bread, cereals and flour from Skopje, manufacturer of vegetables from Skopje, producer of kiwi from the village of Smolare, Strumica, manufacturer of strawberries from Strumica, Eco-Group of Kavadarci, legumes, fruits and vegetables, manufacturer of honey from Vinica, manufacturer of nuts and fruits from Eastern Vinica, manufacturer of pears and plums from the village of Kuklish Strumica, Floreo company, producers of honey from Mariovo village, Fruits and legumes producers from Valandovo, producer from the village Mustafino, association of rice producers from the village of Cheshinovo and manufacturer of fruits and vegetables from Kocani. Most of them work individually on their own fields, which they have often received as a legacy from their ancestors who also engaged in agriculture. Most of the producers are men older than 35, mostly from the eastern part of the country. A significantly smaller number of women are engaged in organic food production, in this case there are only 2 women individually engaged in organic production. Strumica, Kocani and Gevgelija are the regions where most of the producers produce their products, where Strumica is in incomparable leadership with individual producers. (The “Pokrov” Therapeutic Community which produces organic food is the leader in this region). The reason why the Southeast is the first choice for the production of organic food for every farmer is primarily the climate and soil quality. However, it is important to note that organic fresh produce is also present in Kumanovo and the surrounding villages, Skopje and the surrounding villages, Krushevo, Kavadarci, Sveti Nikole, while organic dairy and meat products are mostly found in Bitola and the Polog region.

From the visit to organic farm in Bardovci

Most of our interviewees have participated in all events related to organic food in the last 5 years in the country, while a small number of them also participating in international fairs. Those who participate internationally often bear the costs themselves. Most of them participate in all food-related fairs, events and festivals, whether it is an organic food festival or a conventional one.

The most visited fairs are: Organic Food Fair in Kumanovo (Producers from Cheshinovo), Organic Food Fair in Skopje (Producers: Skopje, Strumica, Kavadarci, Valandovo), Organic Products Day, Skopje, Organic Food Fair, Tetovo, Organic Festival, Strumica (Producers from Strumica, Valandovo)

These festivals, events and fairs are usually organized and funded by local municipalities, supported by the non-governmental sector, but the initiatives for such events always comes from the producers. Most of the interviewees stated that they have no finances or time to participate in travel and marketing their products abroad. The small percentage who manage to present themselves bear the costs themselves.

Regarding which product they produce the most, the number ranges from one product per manufacturer to 50 different products at company level. Many factors influence what the producers will produce and present, but these are usually the products they have on a regular basis in larger quantities.

The most common products of our interviewees are: honey, nuts, almonds, persimmons, beans, cereals, apricots, apples, kiwi, hazelnuts, potatoes, tomatoes, peppers, cucumbers, strawberries, pears, bread, flour, rice, beets, broccoli, cauliflower and kale.

From the visit to organic farm in v. Palikura, Kavadarci

Due to the small number of organic producers, some products such as broccoli, kale, cauliflower and sprouts are limited in the country and are currently only exclusively produced by the producer in Kocani. The reasons for this are mostly insufficient funds to invest in larger garden beds and glasshouses that would allow for a larger amount of products and consumer information about new products. A producer from Kocani says he finds it difficult to sell kale and sprouts because people often do not know how to use it, so they neglect it and expel it from their diet despite its nutritional value.

New products on the market that are still in the "experimental" phase, but show a huge potential, are dried persimmons that one company from Valandovo recently began to make. These are fresh persimmons that are cut into the machine and then dried in a dehydrator until they become hard on the outside and soft on the inside. The final product, though dry, still remains raw. Quite the opposite, when it comes to everyday products produced by most Macedonian farmers, such as potatoes, apples and persimmons, although the need for them is high, sometimes the same problem arises as with the conventional product, i.e. they often occur in large numbers, which reduces the placement of manufacturers and, of course, the purchase price. This may be one of the reasons why manufacturers try every single season to find a way to maximize their product and their potential. Again, educating the citizens about the benefits of organic food would mean even greater demand for the products mentioned, as well as improved conditions for selling the products locally and abroad.

The purpose of the question what kind of seed do they use, how they cultivate them and who pays for them, was to see whether producers use local or imported seeds, how do they obtain the seeds and who is financing the process. The opinions and experiences are divided. Most of the interviewees use their own old seeds. A smaller number of producers use imported organic seeds that are found in many neighboring countries. Herbal pharmacies are the most common choice for seeds in North Macedonia but also in Vranje, Serba where many quality Italian organic seeds and fertilizers can be obtained. Some seeds are needed only once, and then the new seedling is prepared with the help of the old one. All costs associated with seeds, seedlings and fertilizers are solely at the consumer's own expense.

From the visit to organic farm in Kochani

Regarding on how farmers cultivate the soil and how many people are involved in the production, most of the farmers do it by combining their own hands and tools, and using machines or tractors.

A small part of the interviewees have a capacity of more than 40 people working in their fields. All other independent farmers are assisted exclusively by their closest family, most often the wife, husband and children. The number of people helping is no more than 5 people.

Besides the benefits of the soil, there are still many organic products that cannot be produced. According to organic producers, the most sought after are southern and tropical fruits, including lemon and bananas in the first place, but also types of legumes such as Faba beans. Specifically, this product has been in demand for the last 5 to 10 years due to the needs of vegans and those who do not eat meat and dairy products, because Faba beans contain a large amount of protein. Tropical and southern fruits are especially looked for, especially citrus fruits. From the experience of a smaller number of our interviewees they don't see a need to start growing a product that has not yet been on our market. On the contrary, they say that this market needs to be further enhanced and refined.

For most farmers, organic food production is not their only source of livelihood. Some of them work in farming, own fields where they grow conventional fruits and vegetables, while some have quite other professions such as psychologists, programmers, etc. For some of them organic food is a hobby or a moral calling, but some would like it to be their sole subsistence, but they do not have enough capacity and capital to make it possible.

Those individuals whose organic production is their only subsistence, such as one from the village of Kuklush in Strumica, the other from Skopje, have shared experiences of how they survive.

The manufacturer from Skopje is struggling with selling its products and is seriously considering leaving this branch because the investment and the sacrifice are too great, and the benefits too small. Unlike him, the Strumica manufacturer manages to feed himself and his family only in this way.

"Baleski Organic" and "Floreo" which are family-owned but quite large and successful companies that deal exclusively with organic production and live exclusively from it, but they cannot be compared to individuals as they are a huge production where the whole family is involved and placement is guaranteed. The rice producer from the village of Cheshinovo decided to turn their efforts and knowledge into a cooperative. Together with 30 other farmers he managed to make his own cooperative and educate as many people as possible on organic food. They even created their own system that does not destroy soil and does not consume unnecessary amounts of water during rice production. As the only producer of organic rice in the cooperative, he uses his position to participate in seminars and projects, usually supported by the European Union, and to promote Macedonian organic food.

On the question whether the Ministry of Agriculture pay them subsidies, the experiences are divided.

The kiwi producer from Strumica has a positive experience with ministry subsidies for several years in a row. The manufacturer from Skopje has applied but despite meeting all the requirements no subsidy has yet been paid. Larger companies from Kavadarci and Strumica also receive no subsidies from the Ministry. Producers of strawberries, pears and plums have a sweet-sour experience by receiving the subsidies but after a long time. The flour producer from Skopje has also not received any subsidies.

What everyone has in common when discussing this issue is their hope that it can always be better. Whether it be our Government or foreign, investments in organic production are always more than welcome and the situation will only get better.

The manufacturer from Kocani sometimes receives subsidies, but still says it is insufficient to use its full potential. Cheshinovo's rice producer says he has not applied for Government subsidies so far and has no intention of starting. In short, he does not believe in the help of the state but in his personal investment and effort. The Vinica manufacturer has the most praiseworthy words about the subsidy payment in the last 4 years. He says he receives the subsidies regularly, and not only that, but that the Ministry has even paid him the delayed subsidies from the previous Government.

On the question whether organic producers have support from the local community, the experiences are different. The Skopje-based producer has mixed experiences, saying that those who want to hear more about organic agriculture and want to learn can get that from her, but others look at her with skepticism and disbelief. The representative from Kavadarci-based company that has been involved in organic food production for many years says that they have enormous support from the local community. The kiwi producer from the village of Smolare says he has no support beyond his family, and just like the Skopje producer, they face skepticism and even humiliation. The Strumica village-based strawberry producer says he has no support from the local community, but has it from the First Consumer Cooperative Good Earth, and sometimes when the year is good, by the Agriculture Ministry. The pear and plum producer from the village of Kuklis briefly and clearly states that there is no support. The Skopje-based manufacturer also says he has no support other than the First Consumer Cooperative Good Earth and is considering leaving this branch and going abroad hoping for a better placement for the craft it holds. The Skopje-based producer has little support from the local community, but for him, organic food production is a secondary hobby, so he would continue to work if nothing more for his family. The Mustafino producer is visibly disappointed with the local community. She says the relationship may have changed since the beginning of her experience when she was even humiliated and ridiculed. These cases are rare today, and this is due to people's education. If they were more informed about organic food their relationship with security would change. As for support from the municipality, she is also dissatisfied with the fact that farmers receive incidental assistance when the occasion really requires it, but are often left alone.

Administration, Legislation and Organic certification

The Law on Organic Farming was first adopted in 2004, and in 2009 a new Law on Organic Farming was adopted in accordance with European Regulations 834/2007[20] and 889/2008[21]. With the adoption of the Law on Organic Farming, several rulebooks and lists[22] were adopted that regulate the organic production procedures.

With the adoption of the Law on Organic Agricultural Production in the Republic of North Macedonia currently there are two certification bodies (BALKAN BIOSERT[23] and PRO-CERT[24]) which are accredited by the Accreditation Institute[25] of the Republic of North Macedonia and authorized by the Ministry of Agriculture, Forestry and Water Supply for carrying out expert control of organic production.

Organic farming means a mode of production where the methods used are in accordance with the provisions of this Act at all stages of production, preparation and distribution.

Total certified production area in the Republic of North Macedonia for the period 2005 -2018[26]

Year	Total certified production area/ha	Number of operators
2005	266,00	50
2006	509,42	102
2007	714	150
2008	1.029	226
2009	1374	321
2010	5.228	562
2011	6.581	780
2012	4.663	576
2013	3.168	400
2014	2.359	344
2015	2.632	481
2016	3.240	533
2017	2.900	650
2018	3.909	899

Source: Ministry of Agriculture, Forestry and Water Economy

20 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32007R0834
21 https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:250:0001:0084:en:PDF
22 http://www.mzsv.gov.mk/?q=node/185
23 http://www.balkanbiocert.mk/
24 http://www.procert.mk/
25 http://www.iarm.gov.mk/
26 http://www.mzsv.gov.mk/cms/Upload/docs/Organsko%20podatoci%202018.pdf

Seed and planting material in North Macedonia is regulated by the Law on Seed and Seedling Material for Agricultural Plants[27] and the responsible institution is the Ministry of Agriculture, Forestry and Water Economy (MAFWE) of the Republic of North Macedonia.

The procedure for import of seeds and seedlings is prescribed in the above law (Articles 26, 28 and 29), as well as the necessary quality certificates for their import. ISTA Certificate is a document certifying the quality of seed released for international trade and issued by the International Seed Quality Assessment Organization, based in Zurich, Switzerland (ISTA)[28].

The MAFWE maintains a register of officially registered legal entities that can sell / import seed[29] and seed material[30], which can be seen as not being divided on whether to import organic or conventional seed and seed material.

The import and production of organic fertilizers in North Macedonia is regulated by the Law on Quality and Safety of Fertilizers, Bio stimulators and Soil Properties[31], and the MAFWE (Phytosanitary Administration) is the responsible institution. Import procedure, conditions for the import of fertilizer raw materials are prescribed in Articles 21 and 22 of the Law on Quality and Safety of Fertilizers, Biostimulants and Soil Properties. Pursuant to the Law on Organic Agricultural Production, the MAFWE, which has developed the List of Organic Fertilizers and Soil Improvements[32], is in compliance with Commission Regulation No 889/2008 of 5 September 2008, laying down rules for the implementation of Council Regulation No. 834/2007 for organic production and labeling of organic products.

Organic certification

There are currently two certification bodies in the Republic of North Macedonia accredited by the Institute for Accreditation of the Republic of North Macedonia: www.iarm.gov.mk and authorized by the MAFWE to perform expert control in organic production.

Organic logo

27 Закон за семенски и саден материјал за земјоделски растенија („Службен весник на Република Македонија“ бр. 39/2006; 89/2008; 171/2010; 53/2011; 69/2013; 187/2013; 43/2014; 129/2015; 39/2016 и 71/2016)
28 http://www.seedtest.org/en/home
29 http://www.mzsv.gov.mk/files/registar_na_semenski_materijal.csv
30 http://www.mzsv.gov.mk/files/registar_na_saden_materijal.csv
31 Закон за квалитет и безбедност на ѓубриња, биостимулатори и подобрувачи на својствата на почвата („Службен весник на Република Македонија“ бр.27/2014, 154/2015 и 39/2016).
32 http://www.mzsv.gov.mk/files/Lista%20na%20gjubrinja%20i%20sredstva%20za%20podobruvanje%20na%20svojstvata%20na%20pocva-ta.pdf

Balkan Biocert[33]

Balkan Biocert Branch Office Skopje is the first accredited and authorized Inspection and Certification body in Macedonia, which operates with well trained and highly professional staff and provides high quality and affordable services to interested organic farmers, processors and traders. Balkan Biocert Branch Office Skopje is accredited by the Institute for Accreditation of the Republic of North Macedonia and authorized by the MAFWE. Balkan Biocert Branch Office Skopje is a product of international partnership aimed at answering the need of the Macedonian organic operators. The project partners FiBL (Research Institute of Organic Agriculture, Switzerlans) and IMO (Institute for Market Ecology, Switzerland) provided technical guidance to Balkan Biocert Branch Office Skopje. Balkan Biocert Branch Office Skopje area of activity is inspection and certification of plant production, animal husbandry, beekeeping, wild collection, processing and trade with organic products in the country and abroad, in compliance with the currently effective national and international regulations, rules and legal requirements.

Pro Cert[34]

Pro Cert is a inspection and certification body that operates under the laws of Republic of North Macedonia. Their goal is to offer inspection and certification for products and systems according to international, private and national standards in agriculture, food safety, quality assurance, environmental management and pollution control.

Register of Organic Operators

The latest Register of Organic Operators[35] was launched in September 2018 by the Ministry of Agriculture, Forestry and Water Economy. Through this Register consumers have the opportunity to obtain accurate information on all certified organic producers, traders, suppliers and processors of organic products, and through publicly available information and to directly contact them.

When launched, the register covered 654 certified operators for organic production, for all types of fruits, vegetables, livestock, beekeeping, cereals, medicinal and aromatic plants, wild products, as well as processing of these products. The Register is updated regularly. Now it counts 798 organic operators.

In 2018 the MAFWE announced and started implementing new measures to support organic production, and in some of the existing measures introduced criteria that

33 http://www.balkanbiocert.mk/default_en.asp
34 https://www.procert.mk
35 http://www.mzsv.gov.mk/cms/Upload/docs/%D0%A0%D0%B5%D0%B3%D0%B8%D1%81%D1%82%D0%B0%D1%80%20%D0%B7%D0%B0%20%D0%9E%D1%80%D0%B3%D0%B0%D0%BD%D1%81%D0%BA%D0%BE%20%D0%97%D0%B5%D0%BC%D1%98%D0%BE%D0%B4%D0%B5%D0%BB%D1%81%D0%BA%D0%BE%20%D0%9F%D1%80%D0%BE%D0%B8%D0%B7%D0%B2%D0%BE%D0%B4%D1%81%D1%82%D0%B2%D0%BE%20-%20%D0%93%D0%B5%D0%BD%D0%B5%D1%80%D0%B0%D0%BB%D0%BD%D0%B8%20%D0%BF%D0%BE%D0%B4%D0%B0%D1%82%D0%BE%D1%86%D0%B8%202018%203.pdf

will give organic producers an advantage in the application process. With the call for financial support of € 10,000 non-refundable for young farmers, those who decide to engage in organic production will have an advantage over other applicants. In order to increase the organic production, soon an announcement was published for lease of state agricultural land up to 3 hectares, which will have the advantage of organic producers. The Ministry is also working on promotion of Macedonian organic products at international fairs. With the participation in the world's largest organic fair Biofah and the Agra Agricultural Fair, Macedonian organic producers have the opportunity to present their products to international buyers and potential partners.

EDUCATION

Formal education

Education is important for transformation of research findings into economic benefit for organic farmers. Organic farming courses and trainings have become more common in recent years, since the organic industry is considerably expanding in North Macedonia, and the number of certified organic producers is growing. Inclusion of organic farming in student programs at Agriculture Faculties serves to educate the next generations of agriculture experts. But the interest of young generations in organic farming is increasing, and by interviewing them we found out that the need for more organized and systematic education is much needed.

At the Faculty of Agriculture in Shtip and the Faculty of Agricultural Sciences and Food in Skopje, there are Centers for applied research and continuous education in the field of organic farming.

- The Faculty of Agriculture, University "Goce Delchev" Shtip has included organic agriculture in the curriculum of the Department of Plant Production with the subject "Organic crop production" for the master studies. Also, under the study program Plant Biotechnology, there is a subject "Organic production" where students learn about: Development of organic farming; Organic Food and Legislation; Multi-functionality of organic farming; Standards and laws for production of organic food; Process of conversion to organic production; Impact of organic production on the environment; Agro-technics and protection in organic production; Permitted fertilizers in organic farming; Bio-pesticides - term, role, meaning and use in organic farming; Secondary metabolites and natural defense of plants; Certification in organic production and Development of marketing, benefits and consumers of organic production. Students can also learn more on organic practices within the curriculum of the subjects Agro-ecology (Sustainable Agro-ecosystem - Organic Farming), Selection and semi-production (organic production selection - methods in organic plant selection); Alternative plants (Organic production and use of substitute crops), Industrial plants (Organic production of industrial plants); Modern plant selection (Organic selection).
- Faculty of Agricultural Sciences and Food, "Ss. Cyril and Methodius" University, Skopje includes organic agriculture with the subject "Ecology and Regulatory Agro-environment and Organic Agriculture" and within the study program Plant Biotechnology with the subjects: Organic production in gardening and floriculture; Integral and organic fruit production; The Department of Viticulture and Enology includes Organic grape production in their curriculum, The Department of Husbandry and Tobacco includes Application of methods for ecological, sustainable and organic agricultural production;

Organic agriculture is included in some of the agriculture secondary schools as well, such as "Dimitar Vlahov" in Strumica and "Brakja Miladinovci" in Skopje. The purpose is the students to acquire habits, skills and knowledge of organizational setup and legislation on organic production; to learn the agro-technical and management measures for organic production in crop and livestock production; to understand the importance of the sustainability of organic production; to know the differences between conventional and organic production and to develop a positive attitude towards healthy food production. Agricultural high schools have arable land, mechanization and expert and scientific staff for conducting organic production and applied field research.

Non-formal education

There is low level of implementation of non-formal education by adult education centres, employment centers, etc. in each of the agricultural areas in the country. Also, there is lack of educational materials in the field of organic production and lack of exchange of information from the region.

Examples of non-formal education:

- The Center for adult education[36] in Skopje provides four courses on organic agriculture:
- Organic production farmer (Organizer of this course is Foundation Agro-Centre Education[37])
- Beekeeper for organic beekeeping (Organizer of this course is Adult Education and Training Center "Politechnical Academy" Bitola)
- Producers of organic vegetables and fruits (Organizer of this course is University "Goce Delcev", Stip)
- Applicator of fertilizers in farming (Organizer of this course is University "Goce Delcev", Stip)

36 http://cov.gov.mk/
37 http://ace.org.mk/

- Foundation Agro-Centre for education (FACE) is a non-profit organisation, founded in 2006. General aim of FACE is development of agriculture in North Macedonia and the region by strengthening the human capacities based on formal and non-formal education over sustainable agriculture, environmental protection and rural development, through contemporary educational methods and curricula both in formal and non-formal frame.
- FACE implements two categories of educational activities: Non-formal education (trainings, courses, seminars) and Formal education (postgraduate and doctoral studies). FACE organizes trainings in different fields related to agriculture, environment and rural development tailored to the needs of target groups. They recently implemented the project Green Program for Organic Production[38]. The goal of this project was to enable VET Providers in Macedonia to deliver innovative training programs and courses for sustainable (organic) agriculture with focus on practical (on-farm) training. The objective is to create an operational and accredited (verified) vocational education program in terms of lifelong learning modular courses for organic agriculture in Macedonia, implemented by trained and experienced educational staff.
- The Civic Center for Sustainable Society development "EGRI" from Kriva Palanka in partnership with the Association "WE" from Kyustendil, Republic of Bulgaria organized series of trainings for getting to know organic producers with business planning process and establishment of small organic farms scope within the "Produce organic-environmentally friendly packaging". As part of the project were implemented educational sessions for the population from the Northeast Planning Region in N.Macedonia and Kyustendil area in Bulgaria for the process of production of organic food, training on transformation from traditional to organic eco-way packaging of products. At the trainings twenty participants from both countries participated, and lecturers were professors and experts from the Faculty of Agriculture and Food from Skopje and Kyustendil. The project was implemented within the IPA Program for European cross-border cooperation Union between the Republic of North Macedonia and The Republic of Bulgaria.
- The Federation of Farmers in the framework of the project "Institutional Support to the Federation of Farmers of the Republic of North Macedonia" supported by We Effect together with the Swiss IME Program organized a training on Organic Farming for the members of the Young Farmers Network.[39]

PROMOTION

In December 2019 in Kumanovo the Chamber of Organic Producers (COP) was founded. This is the first chamber of its kind to join the family of the oldest and most numerous business association in the Republic of North Macedonia - the Economic Chamber of North Macedonia. The Chamber of Organic Producers is home to more than 100 members from all regions of the country. The chamber offer a wide range of services to their members, such as: education of producers, assistance in promoting organic production in the country and abroad, organization of fairs and manifestations, hiring of domestic and foreign experts and consultants for organic production. Also, membership in the chamber of all agricultural organic producers makes their way easier to compete for the use of IPARD funds.

The Federation of Organic Producers of North Macedonia[40], supported by the Ministry of Agriculture, Forestry and Water Economy organizes the traditional Organic Production Day taking place at the Macedonia Square in Skopje. At this fair people have the opportunity to get acquainted with organic producers, the products they produce and to taste them. The last fair was organized in October 2019. The Federation of Organic Producers of North Macedonia is a national umbrella organization established by the regional producers of organic products in the country. It was created to provide coordination and leadership of the organic movement in North Macedonia.

In September 2019, producers, companies, farmers from North Macedonia, Serbia, Bulgaria, Armenia, Croatia and Slovenia, showcased their products at the International Organic and Traditional Food Fair "Organic Table" held in in Kumanovo, organized by the Association of agricultural development, environmental protection through research, education and maintenance of biodiversity "Zivot". The event aims to promote organic production. This event is an exhibition space where organic products can be seen, where producers of both organic products and traditional food can be brought together. Producers hope that the event will contribute to increasing citizens' interest in using organic products, but that it is also a good opportunity for them to get to know each other, exchange experiences and ideas for further expansion of production.

Last year's Festival of Organic Food[41] supported by the City of Skopje was held under the motto "Let's Build Healthy Habits Together" at Skopje's Macedonia Square on September 2019. The aim of the festival is to promote the use of organic products as an important segment of the daily diet. According to the organizer, the list of organic exhibitors is expanding. The 9th edition of the festival featured exhibitors of organic honey, organic cosmetics, organic dairy products, vegetables and fruits, coffee, spices, cereals, etc.

WHOLESALE AND RETAIL

The companies that produce large quantities export most of their products to foreign markets, mostly in Germany, Slovenia and the Netherlands. A smaller proportion goes to the First Consumer Cooperative "Good Earth" and the Tinex markets.

Smaller manufacturers sell their goods primarily through the First Consumer Cooperative "Good Earth", then in some of the big supermarkets and some local markets.

According to the experience and the words of the manufacturers themselves, most of them have the best cooperation with the First Consumer Cooperative as one of the few places where they can sell most of their goods. Most of them have a contract with the cooperative that protects them by having most of the quantity produced safely redeemed thereby motivating them to continue to deal more seriously with

38 http://ace.org.mk/en/portfolio/greenpop/
39 https://coopseurope.coop/development/projects/institutional-support-national-farmers-federation-macedonia
40 http://fpopm.com/?fbclid=IwAR38k0csu_6NV1jQNZCdHrFpnl1vTQ0_fDcFOORrO7UtUV1RwJjQsQ09xJo
41 https://www.facebook.com/festivalnaorganskahrana/?eid=ARAzGgNA9OL8xzRoFFRJDOAw03XdWhig6iKCZ-BpngQLjS_qjeQibDUiXgOY-FkIoIU-IqksUpvjCgNJK

organic food production. Large supermarket markets, though offering small local purchases of organic products, give preference to the foreign market and conventional products. Those who fail to sell all their organic products, such as the producers from Cheshinovo, Kuklis, Mustafino and Skopje go to either the foreign market or sell them as a conventional product at a regular price. This often adversely affects producers as it demotivates them to pursue organic production.

CLIMATE CHANGES

Climate change is one of the biggest challenges in the agricultural business. As a consequence of the increase in the greenhouse gas content in the atmosphere, global warming is expected to rise.

Agricultural production is indivisible with climate, making agriculture one of the economic sectors most sensitive to climate change. The impact of elevated temperatures on crop yields in itself does not need to be negative, but it should be borne in mind that elevated temperatures strongly influence the evaporation of water and the increasing need for water crops. Higher water needs are accompanied by reduced rainfall in the vegetation period and a strong water scarcity for normal crop growth and development. Therefore, a strong pronounced decrease in crop yields is expected in the Republic of North Macedonia. This reduction ranges from about 10% in 2025 to over 40% in 2100, depending on crop and growing conditions.

In countries such as North Macedonia, the risks of climate change for the agricultural sector are an immediate and significant problem as the majority of the rural population relies directly or indirectly on agriculture to make a living. The rural population is disproportionately affected because of their greater dependence on agriculture, their relatively weak ability to adapt, and the high share of income they spend on food.

In order to reduce or at least mitigate the negative impact of climate change on agricultural production, it is necessary to begin with adaptation measures that would be effective in the short or medium term and at the same time easy for implementation in both practical and economic terms[42].

The government has set up the National Committee on Climate Change and is working on measures to mitigate the effects of climate change on agriculture.

Our interviewees also shared their opinion whether the climate change is affecting their production.

Extreme weather conditions, whether it is heavy rains that cause diseases, hail, extremely sunny summer that causes sunburns, drought, lack of water, all have a negative impact on the end product. Ice breaks and frosts that occur at atypical times of the year affect the yield of grain and barley and directly affect the work of one producer in Skopje. Climate change often affects food growth, so those with better fields and garden beds are certainly more protected than those working with more modest materials. Of course they are not fully protected from extreme weather or wind.

42 http://agencija.gov.mk/download/%D0%9F%D1%83%D0%B1%D0%BB%D0%B8%D0%BA%D0%B0%D1%86%D0%B8%D0%B8/%D0%92%D0%BB%D0%B8%D1%98%D0%B0%D0%BD%D0%B8%D0%B5%20%D0%BD%D0%B0%20%D0%BA%D0%BB%D0%B8%D0%BC%D0%B0%D1%82%D1%81%D0%BA%D0%B8%D1%82%D0%B5%20%D0%BF%D1%80%D0%BE%D0%BC%D0%B5%D0%BD%D0%B8%20%D0%B2%D0%BE%20%D0%B7%D0%B5%D0%BC%D1%98%D0%BE%D0%B4%D0%B5%D0%BB%D1%81%D1%82%D0%B2%D0%BE%D1%82%D0%BE.pdf

“The only way to protect our products completely is expensive machinery and greenhouses that our manufacturers can rarely afford. Although it has not yet occurred to any of the growers to lose the entire harvest due to climate change, most of them say this is what is to come in the near future”, said one of our interlocutors.

The Mustafina manufacturer mentioned a specific measure to deal with the problems. Namely, she says that they use the water from the dam, and so to prevent dry soil in dry periods the water from the dam should be used only if needed, i.e restrictions should be placed on it.

Even the honey producers from Vinica and Mariovo are affected by climate change. In hot summers the bees cannot be fed and this directly affects the quantity and price of the final product.

The final product is most easily protected with quick selling or storing it. For this purpose almost all manufacturers have their own warehouses and chillers where they manage to protect them for as long as necessary. However, it is safest the food produced to be sold immediately, as is the case with most of the interviewees who are guaranteed to sell food to Good Earth, green market or other local markets. The most frightening moment comes when producers lose even a fraction of their crop because of climate change, which means their huge investment is lost.

SUCCESSFUL STORIES

Organic production in North Macedonia has continued to grow, but with very little margin of growth. The small span is the result of several factors, but the biggest is the product placement itself. The owners of the brand Floreo (Zoran and Aleksandar Marinkovik) say that the placement of organic products is very difficult, especially now with the current situation.

Visit to company Zoralek

The Floreo brand was founded by Zoralek in 2015 with the support of the European Bank. Together with the digital marketing agency Nova Solution from Bitola, they have created 10 products from their portfolio, starting with brand name, logo, website and other social media activities.

The Floreo brand has large production and processing capacities. They own 500 bee

families, and plan to increase the capacity to at least 1.200 bee families in the next year.

With the establishment of the brand, online sales began, as well as the positioning of products in several stores on the domestic market:

- Zegin Healthy food
- Good Earth
- Marvik
- Bio Cosmos.

Despite the representation and market presence in certain stores, organic producers still complain about the placement of their products on the store shelves.

A number of factors that make the market placement difficult are discussed below:

Price

Negotiations between major markets and manufacturers to position organic products on their shelves often stop at the price. Market demands are sometimes overwhelming and even unrealistic. At the purchase price offered by the manufacturer, the markets account for 15-20% rebate, plus 15% profit margin. To make the product's way to the shelves more complicated, supermarkets impose an additional 6% rebate on their distribution. So, if the purchase price of a jar of organic honey costs 100 denars, it would be reduced to 75 denars for the total percentage of rebates. And increased by a 15% profit margin, the shelf sale price of the product would reach 115 den. This selling price does not cover the costs of the manufacturer and its profitability threshold is negative.

The challenge with the price is, if the manufacturer enters the market with a lower purchase price, it has to lower the prices in other retail outlets, as to not create competition between the products.

Purchase and distribution

The distribution of organic products is also a big challenge. The markets impose 6% rebate on their own distribution. While inventory control and coordination is a complicated process, as Alexander says. In order for the manufacturer to keep up to date with the quantity of inventory in the markets, he must constantly communicate with the responsible market managers and constantly check, even sometimes in person. Market managers are not able to monitor the status of organic products constantly to report to the manufacturer.

Only one of the retail outlets, Zegin Healthy Food stores have stock-monitoring software in place and know in a timely manner what organic products should be purchased.

Mutual competition

Mutual competition created by beekeepers on the domestic market seriously impedes the sale of organic honey. Many beekeepers, who produce honey at home, are often not registered as legal entities with the Food and Veterinary Agency. So in the sales process they have no serious obligation about the product itself. Free from stickers, labels and many other activities that they would have for the product if they were legally registered as an entity.

If this way of selling is subject to increased controls by the competent authorities and they are registered as legal producers, all legal entities that are an integral part of the process of selling and marketing the products would benefit.

Subsides

However positive the subsidies appear to be, they have a negative impact on production and sales. Many times, manufacturers only make a fictitious increase in sales. That is, the number of bee families can increase from 50 to 100 baskets, while the amount of honey production stagnates.

Often the quantity of honey is reduced, and this is due to the secure income stream they receive as a result of the subsidies, so the bee keepers do not invest much in increasing honey production.

Export

The price of organic products is not only a problem factor in itself, but it is also a challenge when it comes to placing products on the foreign market. Alexander says he often received comments that the purchase price was too high for distributors. Serbia and Bulgaria are listed as the main competitors for Macedonia. He says that the purchase price of organic products is much lower than the price on our market. The reason for this is the large volume of production and sales, which is due to the education of the producers, the consumers and the high level of awareness of the consumption of organic products.

A lot of the honey in Macedonia is imported from Serbia and Bulgaria, as much as 80% of the honey placed on our market is from foreign producers.

One way to overcome these challenges is to educate both producers and end consumers. According to him, one should work on increasing the awareness of the consumption of organic products, ie emphasizing the value and benefits of their consumption, as well as educating consumers on how reliable the manufacturer is from which they buy organic products. In addition, manufacturer education would cover several key steps:

- Highlighting the most favorable way of production;
- Emphasize the quality and quantity of organic products, not the quantity of bee families;
- Optimal utilization of subsidies for organic production.

Suggestions and recommendations for facilitating the placement of organic products

The availability of organic products to end consumers would be made possible in several ways:

- In each larger market there should be a separate corner labeled “Organic Products”, which would separate them from conventional products;
- Release of organic products from rebate when placed in major markets;
- Assistance in the aspect of education of all subjects involved in organic production;
- Control and coordination of all registered and unregistered producers of organic products in North Macedonia.

The Ministry of Agriculture, Forestry and Water Economy as well as the Chamber of Organic Producers are expected to be the main support to organic production, in overcoming all the challenges and reaching their growth potential.

4.2. BULGARIA

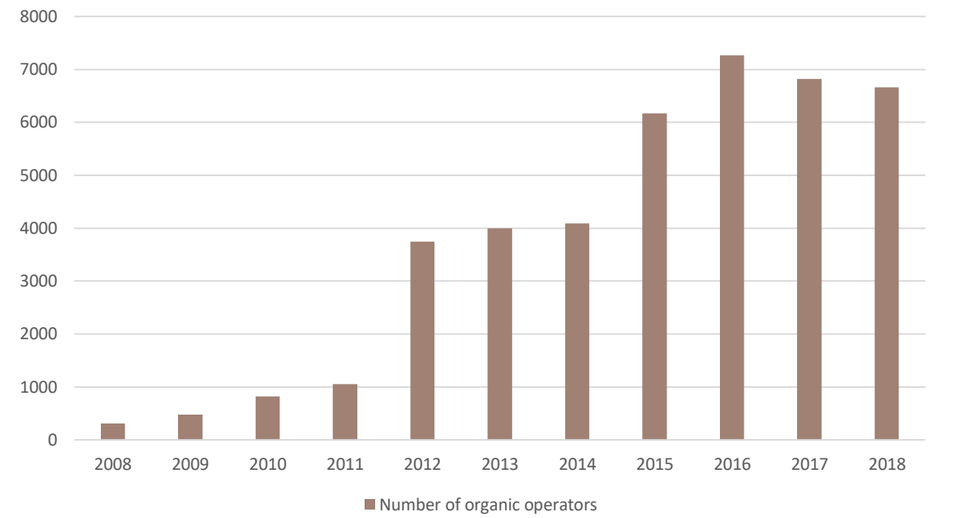
STATUS OF THE ORGANIC FARMING IN BULGARIA

Although farming land use in Bulgaria covers only 5.224.402 hectares, it provides farmers with more opportunities than other countries in Central and Northern Europe. The high quality of farmland, in combination with the favorable climatic conditions in the country, allows for the cultivation of a wide variety of crops.

Organic farming in Bulgaria has over 30 years of history. In 1987, the Agricultural University of Plovdiv established an Agricultural-ecological Center with a demonstration organic farm, and in the late 90s the first Bulgarian organic farms appeared. The first Bulgarian certified products hit the market in 2001.

Compared to the small number of organic operators in 2008 (311), by the end of 2018 they are 20 times more (6.660). Out of them, 6.214 are producers, 234 are processors and 212 are traders (importers, exporters, wholesalers and retailers).

Number of organic operators



Source: Ministry of agriculture, food and forestry of Bulgaria

A list of organic operators can be found here: https://bioreg.mzh.government.bg/Home/DataBaseList

Organic Crop Production

EC data shows that Bulgaria is the country with the highest growth in organic production. The organic crop area by agricultural production methods and crops is 128 839 ha in 2018 or more than 5 times (504%) than in 2010 (25 588 ha).

Organic crop area by crops (ha)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cereals, incl. rice	2758	5339	6521	7532	7669	12601	22191	30940	16602	21019
Dried pulses and protein crops for the production of grain			106	48	0	404	1257	523	1238	17380
Root crops			6	96	98	78	103	92	342	1366
Industrial crops - total	2102	4 913	5846	7 909	10924	12 878	20873	30512	22998	31273

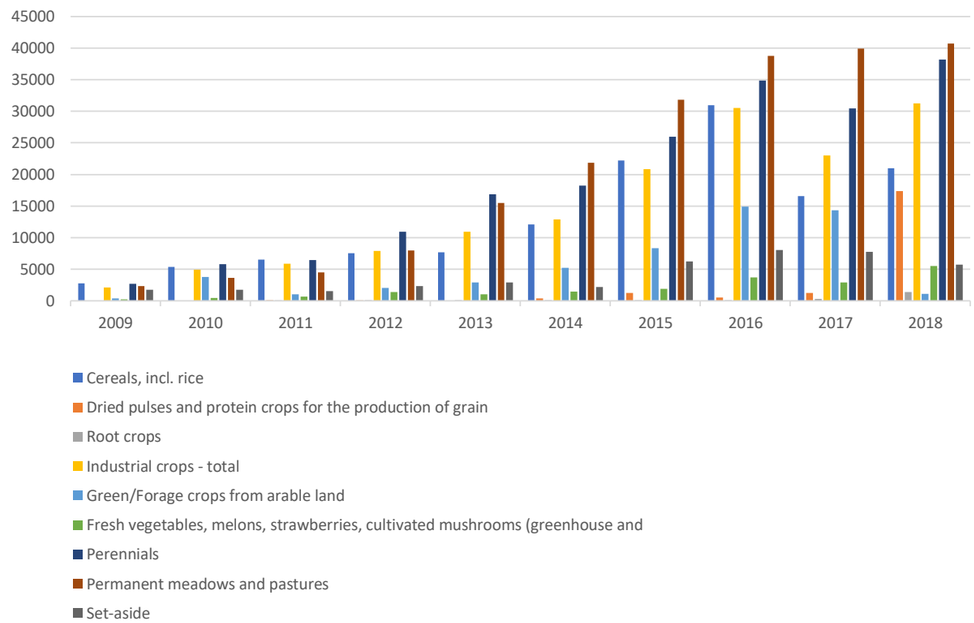
Green/Forage crops from arable land	343	3786	995	2044	2 881	5 215	8 330	14911	14366	1120
Fresh vegetables, melons, strawberries, cultivated mushrooms (greenhouse and outside production)	243	428	670	1421	1037	1445	1866	3678	2894	5527
Perennials	2688	5795	6 442	10959	16885	18213	25946	34874	30485	38189
Permanent meadows and pastures	2317	3611	4491	7957	15476	21831	31796	38736	39921	40751
Set-aside	1762	1716	1513	2315	2905	2205	6209	8075	7782	5707
Total	12213	25588	26590	40281	57875	74330	118571	162341	136 628	162332

Source: Ministry of agriculture, food and forestry of Bulgaria

In 2018, the area under control represented 3.2% of the total utilized agricultural area in the country, compared to 2.7% in the previous year. Of all the areas with an application under the Single Area Payment Scheme (SAPS) during the year, about 2.4% are under control.

The areas with cereals of organic origin (mainly wheat, maize, barley and oats) increased by 26.6% compared to the previous year, to 21 019 ha. The areas occupied by industrial crops in the control system in 2018 are 31 273 ha (including areas with oil-bearing rose, aromatic crops, medicinal plants and spices). Compared to 2017, there is an increase of 8,275 ha or 36%. Areas with aromatic crops, medicinal plants and spices reach 20 548 ha, which is 3 689 ha more on an annual basis. The largest share of this crop group is occupied by the areas with lavender (7 021.5 ha), followed by those with fennel (3 948.2 ha), coriander (2 648.6 ha) and oil rose (2 255.2 ha). The area with permanent crops is growing by 25.3% compared to 2017, up to 38 189 ha. The area under the control system with fresh vegetables, melons, strawberries and cultivated mushrooms almost doubled, reaching 5 527 ha. Just over 2% is the increase in permanent meadows and pastures.

Organic crop area by crops (ha)



Source: Ministry of agriculture, food and forestry of Bulgaria

Since 2015, Bulgaria occupies one of the leading positions in areas of vineyards grown using organic farming in the EU, making possible the production of bio wine, authorized since 2012 by EU Regulation 203/2012.

In 2015, Bulgaria became a leader in Europe in terms of the number of bee hives reared in accordance with organic farming methods, which is a prerequisite for expanding the production of organic bee products.

By size of certified areas for the collection of wild fruits, herbs and mushrooms, in 2014 Bulgaria ranked third in the EU, after Romania and France which is a prerequisite for the development of niche production and inclusion in an expanding market.

Bulgaria is the largest producer of organic rose and lavender oil in the world. This fact, as well as the growing production of other diverse organic essential oils, such as hub plant, strengthens the position of the country as a traditional and sought source of these products.[43]

43 Ministry of Agriculture, Food and Forestry, National Plan for the Development of the Organic Farming In Bulgaria (https://www.mzh.government.bg/media/filer_public/2019/08/28/bio-nacionalen_plan_do_2027_5m5NRlH.pdf)

Organic stockbreeding

The organic livestock sector in Bulgaria continues to be less developed than organic crop production, although in recent years there has been a positive trend in the number of farmed animals in the control system. Cattle, sheep, goats and bee families are mainly farmed in the country. Following the upward trend of the last 5 years, in 2018 organic bovine animals reach 11 359 units - 9.2% more on an annual basis, representing 2.2% of the totally bred in the country. Goats in the control system continue to grow. In 2018, their number is 9,339 - up 316 compared to 2017, representing 3.4% of the total number of goats in the country. 5.4% is the increase in 2018 of organically grown bee families, which form about one-third of the total bee families raised. Only organic sheep are down by 8.9% from 2017 to 23 636.

5 280 tons of raw milk, 5.7 tons of cream, 10.5 tons of butter and 244 tons of cheese were produced organically in 2018. The organic production of bee honey and beekeeping products during the year amounts to 3 203 tons, in comparison to 3 760 tons in 2017. In 2018, 1,500 tons of organic mussels were produced, with 500 tons less than the previous year.[44]

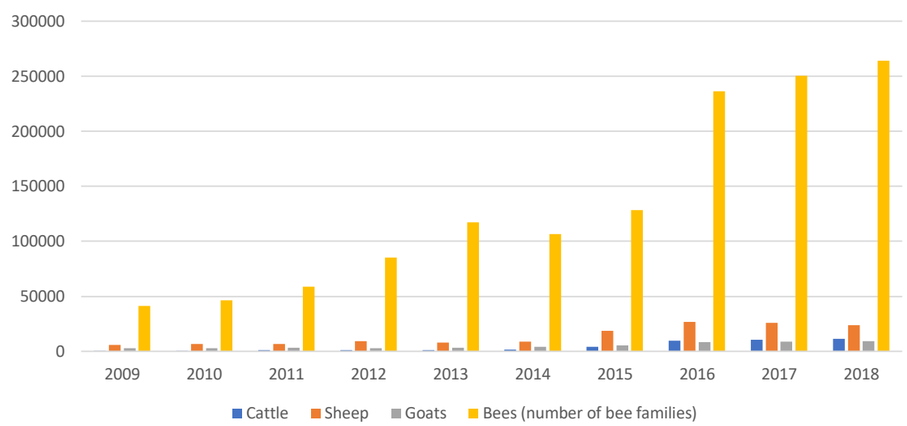
Number of animals raised organically

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cattle	272	364	976	1 173	1 311	1 622	4 209	9 718	10 400	11 359
Sheep	5831	6698	6648	9175	7894	9029	18792	26809	25959	23636
Goats	2732	2773	3397	2831	3235	4142	5381	8242	9023	9339
Bees (number of bee families)	41089	46429	58855	85346	117360	106676	178331	236462	250434	264069

Source: Ministry of agriculture, food and forestry of Bulgaria

44 Ministry of Agriculture, Food and Forestry, Annual Report on the State and Development of Agriculture in Bulgaria 2019 (https://www.mzh.government.bg/media/filer_public/2019/11/29/agraren_doklad_2019.pdf)

Graph 3: Number of animals raised organically



Source: Ministry of agriculture, food and forestry of Bulgaria

Administration, Legislation and Organic Certification

Administrative structures for organic agriculture have been set up under the Ministry of Agriculture, Food and Forestry: A Deputy Minister responsible for organic farming, an Organic Agriculture Department and an Advisory Council. The national legislation on organic farming is harmonized with the requirements of the European Union.

Environmental protection laws in a broad sense, covering water, land, air, human health, the protection of flora and fauna, as well as the implementing regulations, provide the general framework for carrying out certain business activities including agricultural ones. While farmers are free to choose what type of farming to practice, including organic one, they are always required to comply with the requirements related to the protection of land, water, biodiversity and human health. In this context, the application of organic farming methods is one of the most effective approaches in the agriculture sector to meet the requirements of environmental legislation.

The national legislation on organic farming is harmonized with the requirements of the European Union. “Ordinance No. 5 of September 3, 2018, on the application of the rules of organic production, labeling and control, and on the issuance of a permit for control activities to comply with the rules of organic production, as well as for the subsequent official supervision of controllers” is the major regulation that sets the rules for organic farming In Bulgaria. It defines the terms and conditions for:

- Application of the rules for organic production, processing, marking and trade of agricultural products and food and the control over them as required by legislation for organic agriculture.

- Creating and maintaining an information database of:
- producers, processors and traders of agricultural products and food produced under organic production rules,
- entities exercising control over compliance with the organic production of agricultural products and food and their marking as required by Regulation (EC) No 834/2007,
- seeds, seedlings and seeds of potatoes produced by the rules of organic production.
- Implementation of rules for the transition to organic production.
- Implementation of rules for imports from third countries of plants, animals and aquaculture of organic origin, plant, animal, aquaculture and food products as required by the Regulation (EC) No 1235/2008 of 8 December 2008.
- Issuing a permit for control activity and subsequent official oversight of the controlling entities.
- The composition and functions of the permanent interagency advisory committee on organic farming.
- Official control of organic products and food in the commercial network.
- Liaison between institutions having competence in the surveillance and control of organic production under Regulation (EC) No 834/2007.

National Legislation:

- Law for the implementation of the Common Organization of Agricultural Markets of the European Union
- ORDINANCE No. 5 of September 3, 2018, on the application of the rules of organic production, labeling and control, and on the issuance of a permit for control activities to comply with the rules of organic production, as well as for the subsequent official supervision of controllers
- Law on the livestock breeding
- Law on plant protection
- Law on Food
- Law for the implementation of the Common Market Organization of agricultural products of the European Union
- National action plan for the development of organic production for the period until 2027

EU Legislation:

- Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91
- REGULATION (EU) No 1308/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 December 2013 establishing a common organization of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007
- COMMISSION REGULATION (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control
- COMMISSION REGULATION (EC) No 1235/2008 of 8 December 2008 laying down detailed rules for implementation of Council Regulation (EC) No 834/2007 as regards the arrangements for imports of organic products from third countries
- COMMISSION REGULATION (EC) No 1254/2008 of 15 December 2008 amending Regulation (EC) No 889/2008 laying down detailed rules for implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control
- COMMISSION IMPLEMENTING REGULATION (EU) No 203/2012 of 8 March 2012 amending Regulation (EC) No 889/2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007, as regards detailed rules on organic wine
- THE EU Organic Logo

Organic certification

According to the Bulgarian legislation, the control and certification of organic production is entrusted to legal entities (companies and non-profit associations). They should be accredited by the Executive Agency “Bulgarian Accreditation Service” and should have permission from the Minister of Agriculture, Food and Forestry.

Currently 15 organizations[45] are approved.

Each of the certification organizations has a code number, which must be affixed to the label of each product that is offered as organic. The control of compliance with the rules for organic production, processing, labeling and marketing are subject to control and certification concluded between an operator (farmer, processor or food trader) and a controlling entity.

“In 2019, there is a slight decline in those wishing to engage in organic farming. Producers cite lack of subsidies as a motive. This leads them to choose conventional agriculture. There are about 6,000 organic producers in Bulgaria, which are controlled and certified in our country. By this indicator, we have a good place among EU countries. There

45 https://bioreg.mzh.government.bg/Home/Controllers

are many certified organic producers in Italy and Greece, but most important is their authenticity, the outputs and how organic is the "organic", according to Stefka Yoleva, Head of the Organic Certification Body of Bulgarcontrol (a company whose activity since 2014 includes certification of organic products according to the EU requirements (code BG-BIO-15)).

According to her, the path to obtaining a certificate for organic farming in Bulgaria is open and clear. It starts by a request from the operator, receiving an offer according to the scheme, getting a price and, if desired, signing a contract. The contract also depends on the type of crops to be grown by the producer. There is a transitional period, generally two years for annual plantings and three years for permanent crops (eg. fruit crops). Once the specified transitional periods have passed, production and field analyze are conducted to determine the presence or absence of unauthorized substances. This also happens with samples from at least one crop grown by the operator. They are tested in accredited laboratories with which each controlling entity has contracts. Depending on laboratory results and the analysis, it is estimated whether the production is clean and everything is fulfilled during the transitional period. Finally, the relevant certification committees meet with the authorities and grant or deny an organic farming certificate.

Prices for certification of an organic producers are publicly available on the websites of the approved certification organizations. The detailed prices are also visible (how much costs each step and how the final amount is calculated). The price to be paid by the manufacturer depends on the hectares at his/her disposal and the distance of the land from the location of the certification company, since transportation, travel expenses, etc. are charged. A control and certification fee is added to the amount. It is paid annually because operators either in transition or already as organic producers, are controlled on a strict schedule. Each operator is individually assessed for risk factors, based on an existing, approved criteria. According to his/her status, additional inspections are carried out either planned or sudden. If any discrepancies are found, additional operator monitoring is also undertaken. All this has to be taken into account in forming the price.

Based on her many years of observations in the sector, Stefka Yoleva states that in Bulgaria people want to be certified as organic operators mainly because of the opportunities to apply for EU programs and receive subsidies. "Not everyone considers organic farming as a mission and a philosophy, but as a business and an opportunity to make money. And because it is more difficult and less harvested than conventional farming, now, with the increased control requirements and sanctioning of nonconformities, many certified organic operators are reluctant to continue", she continues.

The "Bulgarcontrol"'s expert believes that the biggest challenges in front of organic producers in Bulgaria are administrative obstacles. For example, the new electronic registry which is currently under construction by the MAFF.

EDUCATION

Formal education

Several universities provide education in organic farming in Bulgaria - Agricultural University of Plovdiv (Bachelor's and Master's), Sofia University "St Kliment Ohridski" (Master's), Trakia University - Stara Zagora (Master's), Ruse University (Master's). The University of Forestry – Sofia, the Svishtov Academy of Economics and the Varna University of Economics offer separate optional courses or modules in organic farming.

The Master's Degree Program "Organic Agriculture and Biocontrol" is relatively new (3 years old) at the oldest university in Bulgaria (Sofia University "St Kliment Ohridski"). "Organic Agriculture and Biocontrol" is a "young" master's program, unfortunately with not very good marketing distribution, due to our low number of masters in all directions. There is an interest in it, but, alas, all students prefer to be on a state supported scheme because the fee for paid tuition is double. Therefore, everyone prefers to take a state seat and when they fill, the students give up", said Assoc. Prof. Yana Evstatieva, from the Department of Biotechnology at the Faculty of Biology at Sofia University "St Kliment Ohridski", Chair of the Master Course "Organic Agriculture and Biocontrol".

She explains that everyone who holds a Bachelor's Degree in Biology, Biology Management, Sustainable Development, Biotechnology and Molecular Biology can apply for the Master's Program "Organic Agriculture and Biocontrol". The applicants must have completed basic courses in their undergraduate programs such as: biochemistry, microbiology, plant physiology, botany. People who have completed agronomy can also be included in the course.

"For the two years of this master's program I had a student who had graduated in agronomy at the University of Ruse. He came to us to enrich his biological foundation, since his undergraduate degree emphasized more on the practical side of things. During the second year I had a student who had a degree in microbiology from Pleven. She was with us in order to gain knowledge and to be able to resume her father's business. She completed her master's degree and was able to achieve her goal. Now she produces a high alcohol product by reviving a very, very old vineyard thanks to the acquired knowledge and our teamwork. So, it is encouraging, that many people can study "Organic Agriculture and Biocontrol". The important thing is to have the desire", shares observations from her previous leadership and teaching experience Assoc. Prof. Yana Evstatieva.

She denies the idea of organic products in our society - small fruits or vegetables with irregular shape, but at 5 times higher price: "Actually, this is far from it. The basis of organic farming is the replacement of all conventional technologies and products, such as pesticides and chemicals that have been used to enrich the soil for greater yield, with bio-based ones. Thanks to the micro-organisms and the elements that are put into them, we improve the soil, and from there, they naturally support the plant so that the resulting production can be organic. In fact, that is organic farming. Through something useful, biologically, to produce something biologically useful".

The Master's Program "Organic Agriculture and Biocontrol" at Sofia University builds on everything the students have learned in their undergraduate programs and is enriched by what is currently relevant. The aspiration of the lecturers is that students really face current problems. For example, a graduate of the master's program is now participating in a project under the national program "Food and Healthy Life" which is supported by the operational programs. With the help of his teachers, he examines a particular group of microorganisms that are located around the root system of plants. The aim is to multiply them and to study what substances they synthesize. This will help to germinate different types of seeds in the future, because for one producer it is essential that what he/she puts in the ground to grow. Thus, there are real-life cases in education that are challenging for the students and, by solving them, they see a direct result of their work.

The students in the program "Organic Agriculture and Biocontrol" use many scientific works of Bulgarian scientists and materials prepared for Bulgarian participation in conferences and workshops during their studies. The lecturers also note the good cooperation with their colleagues from the University of Agronomy in Belgrade. On the basis of all this, the release of a product from the laboratory to the field is relatively quick.

"I very much hope that young people will increase their interest in the science of organic farming because each of us at one point during the day is experiencing an abdominal contraction. And whenever someone sits down at the table, he/she says to himself/herself: God, isn't this from a greenhouse, picked green and dyed with chemicals? I think this will be in the hands of the young people that we will produce because we are living producers," said Assoc. Prof. Yana Evstatieva.

Non-Formal Education

In Bulgaria there are established consultancy and training teams on organic farming, which offer services on a commercial basis. One of the reasons for the interest in them is that farmers who commit to apply for EU funds must undergo ecological or organic training.

"About 50 people a year receive organic farming training at our center. We work with prominent lecturers and have the places for practice. The courses in organic agriculture and agricultural ecology last from 2 weeks to 1 month and cost about 250 BGN (128 EUR)", says Ms. Iskra Pavlova, organizer of" Vocational trainings "at the licensed center" EG Consult "Ltd.

According to her, the "people in the fields" do not have the potential or time to study for a master's degree due to the fact that some of them do not have a bachelor's degree, others do not have secondary education, and others just don't need it. That's why they choose short courses in which they gain real knowledge - concise, concentrated, doing their job now. The participants are organic producers at the time of the training. They are interested in specific things that will facilitate their work and/or reduce their losses.

"There is a lot of interest in soil science and in composting waste and using it for fertilization. The trainees are particularly interested in what plants are good to grow in a certain type of soil. We also advise them on this, because it is a waste of time and resources to plant something in a soil where it does not generally thrive. This is one of our strengths - that we give specific instructions", explains Iskra Pavlova, adding that the training programs are developed by the best experts - theorists and practitioners. Besides the lectures, the trainees also have a farm practice in the village of Rashkovo.

The need for knowledge is the reason for this type of non-formal learning. According to Pavlova, Bulgarians are farmers and breeders by tradition, from the past. "We have been leaders in this knowledge and skills and many nations have learned from us. Unfortunately, this is not currently the case. Now many people are ambitious to work in agriculture, not because it is lucrative, but because they live in rural areas without livelihood. Unfortunately, they lack knowledge. Of all farmers interested in training at the vocational center, the most interested are organic farmers. This is because more and more people are striving to live healthy and look for organic products. However, organic production in Bulgaria continues to be difficult because of all the chemicals that are widely sprayed on crops in conventional agriculture and wastes imported from other countries. This pollutes the land and creates difficulties for the organic producers".

PROMOTION

The promotion activities of organic products are organized on project basis or by the organic producers themselves. "The events promoting our organic products are mostly organized by ourselves. We are financially supported by the Ministry of Agriculture, Food and Forestry for participation in various exhibitions and farmers' markets. The organic producers pay a fee to participate in an event and later with the assistance of the Bulgarian Association of Organic Products, our funds are reimbursed. So it's easier because a small organic farmer can hardly arrange to go, pay 100 BGN (51 EUR) participation fee and hire a person for a booth at an exhibition or market, said the Chairman of the Bulgarian Association of Organic Products, Albena Simeonova. An example is the support that the MAFF provides for participation in the "Green Week" in Berlin, where organic operators present their production and meet their counterparts from others countries.

Another form of promotion is the direct contact between organic producers and consumers during the farmers' markets. "They are a good thing because that's where the customer can meet the producer, to make direct contact with him and buy directly products without a commercial charge", says Albena Simeonova, who is also an organic producer (growing 29 ha of vineyards in Lubenovo and producing bio wine).

Every Wednesday, almost in the center of the capital Sofia there is a market for organic products that enjoys enormous interest from both manufacturers and customers who already know how tasty and different the organic product is and are looking for it. Farmers' markets are quickly gaining popularity, and they are already in almost all major cities of Bulgaria. "Mayors in metropolitan areas are already looking for us and want to organize organic markets in the neighborhoods. We see these markets as very good regional events," says the Chair of the Association. She adds that the Bulgarians organic

producers need more support from the MAFF in the negotiations with the big food chains. They ask all manufacturers for an initial fee for selling products in their stores. A fee that farmers cannot afford. They are also unable to promote product as they sell with minimal surplus, their yields are low and almost all cultivation and processing operations of products are done by hand.

WHOLESALE AND RETAIL

Although relatively new and still small, the organic market in Bulgaria is growing rapidly. Over the last few years, there has been a boom in it. The number of specialty stores is increasing as well as the number of outlets that offer organic food. However, most of the Bulgarian organic products are intended for export. For example, the country is a traditional producer of various types of organically certified bee honey with excellent quality indicators. Most of it is exported to the world market. Additionally, Bulgarian organic fresh fruits and vegetables, milk and dairy products, sweet, chutneys, dried fruits and nuts, have excellent taste and are highly valued at the European and world markets. According to the Chair of the Bulgarian Organic Products Association, Albena Simeonova, the Bulgarian production is well accepted and sought outside the country. It is exported mostly to Germany, but also to Austria, the Netherlands, Denmark, the United Kingdom and France.

According to Stefka Yoleva, Head of the Organic Certification Body of "Bulgarcontrol", the low purchasing power of the population is a challenge for the organic producers in Bulgaria, although there is a rise of the number of young people and families who want to eat clean food. The lack of a wide market often forces organic producers to sell at lower prices.

The advice of the expert to the consumers is always to ask for a certificate when buying organic products. In Bulgaria, though isolated, cases of false certificates for organic products have been detected. "Unfortunately, manipulation can always be done nowadays, but the authenticity of the certificate can be verified very quickly", says Stefka Yoleva.

A distinctive, external feature of an organic product in Bulgaria is the European organic product logo. Under it is the number of the certification body by which it is registered on the website of the MAFF. Through that, it is easy to check whether the product in question is controlled. If the product is certified as organic, this means that it does not contain any chemical preparations for plant protection, fertilizers and genetic modifications.

According to Iskra Pavlova, organizer of" Vocational trainings" at the licensed center" EG Consult" Ltd, the competition of low quality imported goods continues to be a challenge for Bulgarian organic farming. Although the imported products are organic, tested in laboratories and certified, they have worse quality than native ones and are cheaper. The reason for the lower prices is higher subsidies in other EU countries.

"From my communication with many organic producers, I can say that their situation is quite difficult right now. They find it difficult to sell their production and many of them go bankrupt. Therefore, they want to take courses, an expert to tell them the details, to solve a specific case. For example, the Head of the Institute of Soil Science, Agricultural-Technology and Plant Protection "Nikola Pushkarov" provides to the trainees many, specific solutions that make their production more efficient. The goal of organic farmers is at least not to waste money because of lack of knowledge", comments Iskra Pavlova.

POTENTIAL FOR DEVELOPMENT

"Bulgaria is last in the field of organic agriculture - in terms of area and animals, by certified products. We are in the last places in the Balkans. In Serbia, Romania, Greece, especially Turkey organic producers are extremely supported, so the percentage of organic products there is much higher. In the organic farming development plan until 2013, Bulgaria has set organic agriculture in our country to reach 8%. But at the end of this period it has not even become 1%. It is 2020 now, and organic farming in Bulgaria is about 5%". With this data, the Chairman of the Bulgarian Association of Organic Products, Albena Simeonova answered the questions about what part of the Bulgarian agricultural production is organic and where are we vis-à-vis EU countries and the Balkans on this indicator. Despite the numbers she is convinced that the Bulgarian organic farming sector has huge potential. The Bulgarians are more and more attentive to what they put on the table and that is why the demand for these products is increasing. In the big cities of Bulgaria, and not only there, many organic products are sought, especially by mothers with young children.

"The main problem of organic producers in Bulgaria is the difficult communication with the media. At the same time the people get most of the information about any product from it. And if in the media the opinion is: this product is from high up in the mountains, grandma's, grandpa's, uncle's garden and that's why it's pure, organic product, people accept it, says Albena Simeonova. She states that there is no organic product and product of grandma, grandfather and village. There is an organic product, everything else is a conventional product. "I also live in the countryside and see what grandmothers are doing in the neighboring yards. Their first job is to clear the seeds with detergent to use less the hoe, then put the preparations when sowing them, a complete chemistry at all. Therefore, naming a product from grandmother, grandfather or other as organic is in no way a guarantee for it, and vice versa in most cases, it is littered with chemicals. So it's even better to choose a simple, conventional product from the market in the city that at least is controlled".

According to Stefka Yoleva, Head of the Organic Certification Body of "Bulgarcontrol", Bulgaria has the potential to develop organic farming as long as the national framework of legislation is less frequently changed. "To have stable environment, people to learn to comply with the current requirements, not constantly new, new, new ... It is frustrating, confusing and actually useless. Just law-makers has to do things very precisely. In working groups, they invite representatives of the controlling companies, but in many cases, texts are accepted without our participation", she says.

"Bulgarian organic farmers have also good practices for successful organic farming. "Organic producers are innovators because they are convinced environmentalists.

Almost every farm that produces organic products has its own good practice. For example, a goat farmer from Bansko received two ducks as a gift. He put them on his farm and later found that there were no fleas, parasites on his goats. It turned out that the birds were feeding on insects, so he also made a flock of ducks", explains Albena Simeonova, Chairman of the Bulgarian Association of Organic Products.

Opportunities for New Jobs

"The organic farmers do almost everything by hand. So they have to constantly pick, cut roses, orchards, vineyards, organic breeders need the shepherds and the milkers, the packers and those who serve the machines, those who do the labeling. Most of the operations are done by hand. Therefore, the need for manpower is extremely great. However, the bigger problem is skilled workers", says Albena Simeonova, Chairman of the Bulgarian Organic Products Association. However, she notes the good partnership of organic producers with the Agrarian University of Plovdiv and the Svishtov Academy of Economics, whose students have internships in Bulgarian organic farms and on whom the producers are hoping in the future as graduates.

Assoc. Prof. Yana Evstatieva believes that being an organic expert today is attractive, because the EU is giving money for the branch, the EC is also providing a lot of resources to support products of proven origin from the ground to the table. This has led more and more people to dedicate themselves to the profession, convinced that they will have a well-paid job tomorrow.

"I am talking about the future because the thinking of the Bulgarian citizen is still: it is very nice to have something organic, something new, but we will keep to the classics - we will use blue stone and lime in growing the plants. It is difficult to get out of one level, difficult to change attitudes. However, there is a tendency on the Bulgarian market for more and more organic products to emerge with the use of various microorganisms that improve soil fertility and general plant physiology. This, though slowly changes attitudes", an optimist is the lecturer at Sofia University.

SUCCESSFUL STORIES

Veselina Ralcheva, award-winning organic farmer of 2019, and her revolutionary acne and oral hygiene products

The organic producer of the year prize is awarded for a first time in 2019 and its winner is Veselina Ralcheva. This is a recognition of many years of effort and work, but also a recognition of 2019, during which Veselina changed the ideas about the "organic" in Bulgaria. Through her "Ralchevi Bio Gardens" brand, she pulled down the curtains and showed thousands of people interested in what exactly is happening at an organic farm and how plants are grown that way. On its Facebook page, the brand captures the entire process from planting to harvesting and the reason for choosing organic". In 2019 Veselina changes something else - she makes organic products available in Bulgaria. In 2017, after a visit to one of the big retails chains, where she sees the price of organic potatoes at 5 BGN (2.56EUR)/kg, she sets herself a personal goal of making organic fruits and vegetables available to Bulgarian consumers. In 2019, 100 ha of organic potatoes, 30 ha of organic melons, 10 ha of organic raspberries, 8 ha of organic onions and 20 ha of organic zucchini are already grown in "Ralchevi's Bio Gardens". In the same year, these products entered the "Metro" chain, with a final price two times lower than the previous one. Veselina Ralcheva offers her organic products at almost prime cost to make them accessible to Bulgarian consumers.

Veselina Ralcheva started her family business with her husband back in 2001. Then, as absolute amateurs, they decided to resume a forgotten livelihood in Panagyurishte - rose production. With no experience but many dreams, she began her journey with only 2 ha of roses and 5 ha of lavender. In 2004, when organic farming in Bulgaria was exotic and there were still no certification organizations, she decided to take the risk by choosing the path of organic production. In 2009, she initiated the establishment of the Bulgarian Organic Products Association, of which she was also the first chairman. From 2006 to 2018, her business became the main subsistence of people from minorities in Panagyurishte, with social policy leading in her ideology. She often tells how she constantly checks the notebooks of her worker's children, encourages the most ambitious and motivates the others to study. Veselina is a mother of 3 children, managing to combine the most complex profession, that of a mother, with her business. Veselina's greatest success is still related to organic production, but more to the healing properties of organic-floral waters. After numerous tests, investigations and validations, in 2019 Veselina launches with her son "Inaessentials". A brand of organic cosmetics that really helps people and changes fates.

Through her organic lavender anti-acne water, Veselina helps more than 10,000 teenagers deal with acne, and the smoke tree sumac mouthwash organic-water becomes the secret of many suffering from problem with teeth and gums. Veselina and her son take a different approach. At the beginning of 2019, they set up their website and start with small advertising and small expectations. Until one day a long comment from a customer who is amazed by the lavender water appears below one advertisement… after that comment, 2nd, 3rd and 4th appear… The word of mouth is getting so big, that from manually spilling into the rosary, "Inaessentials" becomes a business with 5 employees who take care of customers and their satisfaction all day long. The brand's motto is: "Make the customer happy at all costs and expect only nice things". They also offer something else - a full refund for a product without the customer even returning it. A model that is not available anywhere else in our country. The thought of the client is appreciated, leading to the days when clients order over 100 items and the whole family strains to work, even the little sister. The statistics are terrifying: out of 15,000 lavender waters, there are only 16 people who want their sum back, and after more than 5,000 smoke tree sumac distillate waters have been shipped - only 1 customer remains dissatisfied.

“The Wild Farm” - Blagovesta and Nikolay Vassilevi. They breed autochthonous breeds (Rhodope Shorthorn Cattle and Bulgarian Gray Cattle) for meat, produce organic honey, beans, potatoes, pumpkins, apple and plum and have a bio hotel.

“We have always been involved in organic production, but we have not been certified. We did this in 2008. Animals have always been grown only with pasture and hay”, says Nikolay Vassilev. He, along with his wife Blagovesta, her brother, his wife, and even some of their grown children, work in a farm in Southeastern Bulgaria. In the village of Gorno Pole, they breed about 1,200 cows and calves from the local breed of Rhodope Shorthorn Cattle and Bulgarian Gray Cattle (old protected Bulgarian breeds). Their farm has certificates for the beef, as well as the pastures on which the animals graze. They also own a slaughterhouse and a shop for the production of meat and veal products, which are also certified for organic production. In addition, the family sows about 0.5-0.6 ha of vegetables every year - beans, potatoes, pumpkins, peppers and more. The vegetable production is also certified. It is intended for the guests of the family farm hotel “Wild farm” and for own consumption.

Nikolay Vassilev is a zoo engineer by education and a farmer by vocation. His job at the family farm is his first and only ever. He began as a student at the age of 21. His wife Blagovesta is a teacher of chemistry and biology, an ecologist by vocation and a tour guide with experience at the Eastern Rhodope Nature Conservation Center in Madjarovo. They live in the village of Gorno Pole, which has 25 inhabitants and say they are not bored because their daily life is filled with many and varied activities, from which they do not have time to rest, let alone get bored.

Nikolay Vassilev remembers the beginning. He started with 3-4 cows bought after selling an apartment in Plovdiv and a dozen goats and sheep left behind by his grandmother. “The hardest part was getting us land. We had about two hectares inherited. The first years we did just that - we bought fields and meadows. We now own 350 hectares and also use state pastures in Rila National Park”, Vassilev says. He also shares that today the challenges facing them as organic producers are not that great. They are mainly related to the retail, but it is not so difficult, because by supplying quality products you succeed. People begin to recognize you and look for what you have done. It only takes time. The meat jars, salami and sausages are sold at their own shop in Sofia (at the market “Ivan Vazov”), at shops in Plovdiv and Varna. They are also available at the farmers’ markets in the capital and around the country. So far, they have managed to sell the products. They currently have jars of meat produced last fall, but are confident they will be sold soon.

In addition to the family, another 10 people work in the farm - in the slaughterhouse, in the workshop and in the field. Vassilev states that finding staff today is difficult, but he was able to create a team, to train and motivate it. He does not need shepherds for the cattle, since the animals are free to feed, and control is carried out by electronic shepherd. In winter, the cows are out in the open again, but they get hay collected from their own meadows. They are not given fodder and are not milked. The milk is left entirely to feed the calves as far the breeds are not for milk, but for meat.

From his experience, Nikolay Vassilev states that he does not encounter difficulties caused by climate change in his work. “In recent years, it has been raining more in the spring and winters are milder, which is better for animal breeding. It is not a problem for our vegetable crop as well”, he says.

According to him, organic production is a niche for Bulgaria. “Our country cannot compete with conventional agriculture. There is no way to market large quantities of meat, because European countries have long been there with intensively fed bred bovine animals. Therefore, catching up will be difficult, and perhaps impossible. Only with organic production we can be competitive and we are, this is a fact”, Vassilev claims.

So far, their farm does not export to foreign markets. The reason - they still lack enough production. The slaughterhouse and the meat processing plant have been operating for only a year and about 25-26 tons of meat have been harvested and processed during this period. The farmers see their development as taking more and more positions on the Bulgarian market. The fact that they are the only owners of a slaughterhouse and meat processing plant with a certificate for organic production gives them optimism. Moreover, until recently they have been the only owners of free and environmentally reared cattle herds. In the near future, they plan to increase them and perhaps sell the production abroad. They do not see economic sense to market their products in the major food chains in Bulgaria. From their experience, they already know that these outlets are not interested and, if they do, sell extremely small quantities.

“For one day at the farmers market, we sell more than “METRO” retail stores sells for a week. Moreover, the payment of the goods is postponed, i.e. we get our money after 2-3 months”, says Nikolay Vassilev. However, he is definite that organic farming in Bulgaria is a lucrative business. However, in order to be successful, you need to be very organized.

“The problem of small vegetable producers, for example, is the huge amount of manual labor and a lack of optimal organization. But there is no formula for the success of all farms. Everyone needs to know what and how to produce in order to be competitive on certain markets. Many people act erratically and their work is meaningless”, says the organic farmer from Gorno Pole Nikolay Vasilev.

Milen Stoyanov, an organic producer from the smallest village of Vratsa municipality in the poorest region of Bulgaria and the EU - the Northwest. He grows organic tomatoes, peppers, pumpkins, spinach and more

“For 15 years I have been involved in organic vegetable production. I cultivate 20 ha in the territory of the village of Malo Peshtene, with half of them being vegetables and the other half of alfalfa”, says Milen Stoyanov, an organic producer from the smallest village in Vratsa.

Stoyanov prefers to grow vegetables from Bulgarian varieties and uses foreign ones only when he does not find native ones, but sometimes other specific varieties are also missing. “One year I was asked for pumpkins of the Hokkaido variety, and there were no seeds on our market. I’m probably the first manufacturer to import them

from Germany. I remember paying 700 euros for the seeds. But there are also many typical Bulgarian varieties that have already disappeared. It is claimed that 90% of the old Bulgarian varieties are missing. Once upon a time, the locals selected vegetables suitable for cultivation in their area. Subsequently, however, different institutes select and sell seeds at a central level, which are more durable and productive, and so the locals are displaced. Now many of the region's typical varieties are irretrievably lost", Stoyanov says.

He goes back to the beginning of his activity as an organic producer and remembers that it was hard for him to explain what organic vegetables mean. He was then producing peppers and selling them on the market. Many customers on different days asked him why the price for a kg of peppers was so high. When he explained to them that he was offering organic production, they replicated him with the question "Are other peppers synthetic?"

Before starting with organic farming, Milen Stoyanov was involved in accounting service, and as an officer - he graduated from a military college. However, it happened that he started to cultivate herbs. He was promised by a company to buy his produce only if it was organic and so he had to become acquainted with organic production. Subsequently, he did not sell a gram of herbs, but was already firmly captured by the idea of organic farming. Today, he defines this as the meaning of his life. Stoyanov believes that organic farming can be profitable, but people have for so long been devoted to the conventional that they have forgotten how to do the original, the first one. Therefore, he talks about good profits from organic farming in Bulgaria in the future, when we remember or learn how to do it.

The challenge today in front of the organic producer from Malo Peshtene is the commitment under "Measure 11 - organic farming", from the "Rural Development Program" of the State Fund for Agriculture. "Things are getting harder, bureaucracy is wasting a lot of time. One does not work but deals with documents. Therefore, I am seriously thinking about giving up on "Measure 11", not counting on support, but being calm, free and not wasting time. Maybe if I drop that commitment, I will be able to earn more production and money", declares Milen Stoyanov.

He sells his merchandise in Bulgaria, but is already thinking about the possibilities to export, as many of his colleagues do. According to him, 90% of the native organic products go abroad. It is optimistic that in Bulgaria the market for organic products is expanding every year and consumption is increasing similarly to that in Europe and the rest of the world. Perhaps that is why a large retail chain like "METRO" agrees to sell organic products in its stores.

""METRO" has lent a hand to Bulgarian organic producers. They agreed to sell without the usual various fees to manufacturers. True, colleagues have cut prices, but their commitment to hang in the markets has dropped. The goods entered the stores and ran out in 2-3 weeks. They also caused a huge interest among the customers", Stoyanov says.

He has nothing to sell right now. There are carrots in the field that he can't take out because of the muddy fields. When it is possible, the organic carrots will go to a juice company with which the farmer has a contract.

Another problem for Stoyanov is finding workers. Last year, a person who worked for five hours was hired. He was the only one who wished to be appointed. So now Milen Stoyanov is looking for options to minimize the need for people. One of them is buying a carrot extraction machine.

The organic producer identifies climate change as a problem for agriculture. However, he cannot take action against it at this stage because he has not invented or seen something that can help. For example, he cites the rainy months last year, followed by 7 months of drought. As a result, carrots are still standing. "The land was like concrete blocks, and there was not a drop of water in the river that flows to some of my cultivated land. The first months of 2020 are not bad, but what will happen, God knows. I started preparing for the planting of peppers, watermelons, onions, potatoes, carrots", says the farmer, from Northwestern Bulgaria. He adds that for their production he will use nettle manure and with alfalfa will mulch crops. If the year and the harvest are good, Milen Stoyanov plans to negotiate the sale of the products in the food chains in Bulgaria, and if he fails, to export them abroad.

CLIMATE CHANGE

The global problem - climate change is also a challenge for the organic farmers. "Last night at the end of February at 9 pm it was 16 degrees. This for the end of the second month of the year at our latitudes is not normal. I cut the vineyards, but hail hit them due to the droughts last year and I lost everything. Climate change creates many problems, not only for organic farmers, but for farmers in general. No serious action is taken against it. The European Commissioner for Agriculture Janusz Wojciechowski said that a big percent (talked about 30) of the next common agricultural policy will go to the practices that protect the environment, that are sparing, concerned with the conservation of wildlife, air, soil and water. I hope for that", says the Chairman of the Bulgarian Organic Products Association, Albena Simeonova.

According to Stefka Yolova, Head of the Organic Certification Body of "Bulgarcontrol" climate change is also a challenge. A drought or a longer rainy season affects the vegetation of the plants and as a consequence the outputs. In agriculture, plants are not always irrigated. And for this reason, it is of the utmost importance that, if the producer does not have an agricultural education, at least to complete the relevant courses in order to know how to take care of his/her farm.

4.3 SERBIA

STATUS OF THE ORGANIC FARMING IN SERBIA

According to data of the Ministry of Agriculture, Forestry and Water Management (MAFWM) and the Group for organic production that records the data base on organic production, based on annual reports of authorized control organizations, organic production in the Republic of Serbia in 2018 recorded overall growth in organic status as well as the numbers of producers. Surfaces of 19.254,58 ha (including meadows and pastures) were cultivated, areas in conversion and organic status, are included. Share of organic production in overall arable land in Serbia is 0,54%. This area does not include land used for harvesting wild berries, mushrooms and herbs. It should be noted that there is no official methodology in Serbia to obtain the data on the total area for wild collection and harvesting wild plant species from their natural habitats.

The total number of organic producers in Serbia was 6.706, in 2018, of these, 500 were individuals (certificate holders), and 6.206 were farmers - cooperants (subcontractors). Plant producers dominate in Serbia.

Primary characteristic of production in Serbia is that organic producers can be divided into two main general groups/types, the first being independent and in direct contract relationship with some of the control bodies, and the second group are farmers, cooperants whose production is subjected to group certification, allowed according to the valid Law of Republic of Serbia. In this way, cooperants are bound by the contract with some of the export companies that buy off whole production and at the same time provide them with support that includes: inputs, education, and certification costs, but the certificate holder is the company, and not the producer. This type of cooperation has shown to be very successful based on the number of participants which is much higher than individual farmers.

Data on organic production

Year	Total areas under organic production (in ha)	Share of areas under organic production in total utilised agricultural land (in %)	Number of producers in organic farming including subcontractors
2012	6,340	0.18	1,228
2013	8,228	0.23	1,866
2014	9,447	0.28	2, 289
2015	15, 298	0.44	2,794
2016	14,357.92	0.41	3,184
2017	13,423.13	0.38	6,153
2018	19,254.58	0.54	6,706

Source: Ministry of Agriculture, Forestry and Water Management

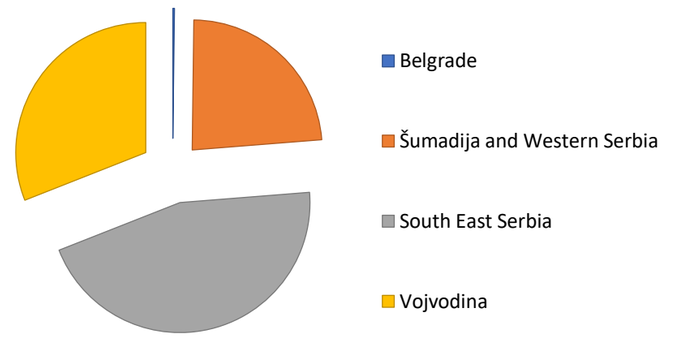
In 2018 South Eastern Serbia was the leading region according to the share of areas under organic arable production with 8.720 ha in total.

Organic plant production in regions in 2018

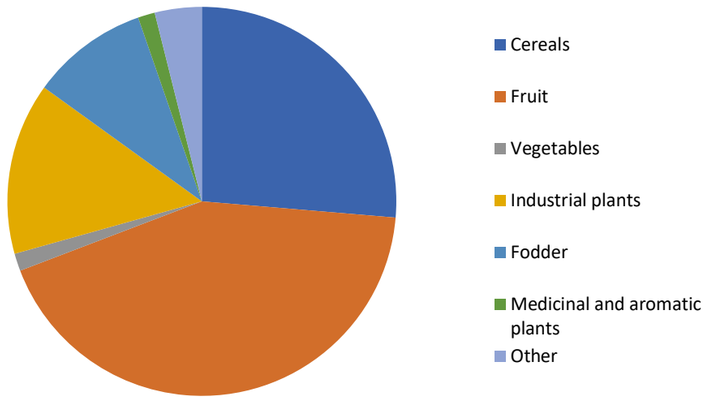
No	Region	Arable land (in ha)
1.	**Belgrade**	38,81
2.	Šumadija **and Western Serbia**	4,532.37
3.	**South East Serbia**	8,720
4.	**Vojvodina**	5,963.4
Total arable (ha)		19,254.58

Source: Ministry of Agriculture, Forestry and Water Management

Organic plant production in regions in 2018[46]



Organic plant production in 2018[47]



Source: Ministry of Agriculture, Forestry and Water Management

46 **Органска производња по округзима у 2018. години**
47 **Расподела по биљним врстама за 2018. годину**

Administration, Legislation and Organic certification

Ministry of Agriculture, Forestry and Water Management (MAFWM) is in charge of organic production in the Republic of Serbia.

Law on Organic Production[48] was adopted in May 2010 (RS Official Gazette no. 30/2010) and applied on January 2011. This Law was drafted to be in compliance with the new EU regulation on organic farming (Regulation EC no 834/2007 and implementing regulations).

There are two rulebooks.

Rulebook on control[49] and certification in organic production and on organic production methods (RS Ofcial Gazette No 48/2011) was adopted in 2011.

This Rulebook under the title "Rules on control and certification in organic production and methods of organic production" prescribes everything related to the organic production methods, technological procedures in processing, storage, transport, control and certification, management of records kept by controlling organizations, and use of the national mark on organic products.

The Rulebook[50] on documentation submitted to an authorized control body for the purpose of issuing a conformation, as well as the conditions and methods of sale of organic products (RS Official Gazette No, 88/16) was adopted in 2016.

This Rulebook describes in detail the documentation submitted to the authorized control organization for the purpose of issuing a confirmation that the certified organic product being imported is produced in accordance with national regulations as well as the conditions and methods of selling organic products.

Within the Ministry of Agriculture, the authority in charge of the work of controlling organizations and organic production methods is the Group for Organic Production, within the Directorate for National reference laboratories. The Group has the following tasks:

- Preparing the professional basis for drafting the regulations in the area of organic production;
- Collecting the annual reports of the controlling organizations;
- Accumulating records on organic production;
- Keeping the list of authorized controlling organizations;
- Deciding on the fulfillment of conditions for performing control and certification;
- Approving of deviations from the methods of organic plant and livestock production and the processing rules in organic production;
- Approving of the use of reproduction material from conventional production after the period of conversion;
- Shortening or extending of the period of conversion

Within the Department for agricultural policy of the Ministry, the Group for quality, labeling and marking of food proposes the agrarian policy measures, participates in the preparation of measures and programs for use of budget funds to encourage organic agriculture development. The group also participates in elaboration of strategic documents and preparation of professional basis for elaboration of regulations on organic production, coordinates the work of the Professional Council for organic production, and cooperates with the international and domestic professional organizations. Inspection control of enforcement of the Law on organic production, and implementation of the regulations adopted thereunder, is carried out by Inspectors for organic production.

The Plan for Organic Production Development in Serbia is part of the National Rural Development Program of the Republic of Serbia, 2018-2020[51], which was adopted by the Government of the Republic of Serbia in 2018. The goal of the Plan for development of organic production RS is to identify challenges slowing down the development of organic production and to define aims and measures to overcome them. This plan should foster development of organic agriculture, development of domestic market of organic products as to increase their export. Also, the action plan determines requirements to ensure stable and long term growth of organic production sector. It stipulates numerous measures that participants would use to increase organic development. The plan has 11 objectives. Every year, the Ministry of Agriculture authorizes controlling organizations that have fulfilled the conditions for performing control and certification in organic production.

Authorized control organizations (certification bodies) by the MAEP for 2020:

- Centre for food analysis ltd (CIN)
- Ecocert Balkan Beograd ltd
- Eco Vivendi ltd
- Organic Control System ltd
- TMS CEE ltd
- SGS BEOGRAD ltd

Certified organic products are those which have been produced, stored, processed, handled and marketed in accordance with precise technical specifications (standards) and certified as "organic" by a certification body. Once conformity with organic standards has been verified by a certification body, the product is afforded a label. This label will differ depending on the certification body but can be taken as an assurance that the essential elements constituting an "organic" product have been met from the farm

48 **Закон органској производњи („Сл. гласник РС", број 30/10)**
49 **Правилник о контроли и сертификацији у органској производњи и методама органске производње („Сл. гласник РС", бр. 48/11 и 40/12)**
50 **Правилник о документацији која се доставља овлашћеној контролној организацији ради издавања потврде, као и о условима и начину продаје органских производа („Сл. гласник РС", бр. 88/16)**
51 NPRR-OD-2018.-DO-2020.G_

to the market. It is important to note that an organic label applies to the production process, ensuring that the product has been produced and processed in an ecologically sound manner. The organic label is therefore a production process claim as opposed to a product quality claim. Control organizations in Serbia can certify according to national, EU, NOP and JAS standards. Certification by national standard is mandatory. Prices for certification are formed depending on many factors of the operator involved, such as: size of agricultural area, types of production / processing, types of primary production (plant and /or livestock), number of cultivated crops, number of agricultural land involved, distances of the land of the same operator, certification standards etc. According to the Serbian Law on organic production, certified domestic and foreign (imported) organic products must be labeled with the mark "Organic product" (National organic logo) and the code of authorized controlling organization. Only products containing at least 95% of ingredients of agricultural origin deriving from organic production can be labeled this way.

Organic logo

The register of the organic producers[52] is maintained by the Ministry of Agriculture, Forestry and Water Management.

EDUCATION

Formal education

Elementary agricultural education is offered in 33 state-funded secondary agricultural schools. During 2010, school curriculum for organic agricultural production was drafted and adopted with the initiative and with active participation of Serbia Organica, in cooperation with the Institute for improvement of education, Ministry of Education. The school curriculum for organic agricultural production is introduced into agriculture high schools starting from 2012/2013 as optional subject (organic vegetable and crop production, organic fruit production and organic livestock production) as part of school curriculum: agricultural technician.

The first bachelor program in organic agriculture was launched at the University of Novi Sad, Faculty of Agriculture in October 2010. Also higher education with special (compulsory and optional) subjects on organic farming/production, is provided by accredited higher education institutions, the most important being Faculty of Agriculture, University of Belgrade, Agronomy faculty in Čačak, University of Kragujevac, and some private institution such as Faculty for Biofarming in Bačka Topola, Megatrend University, and Faculty of Ecological Agriculture in Sremska Kamenica, Educons University.

52 **Списак произвођача органских производа за 2018. годину**

Master degree in Organic agriculture is accredited at Faculty of Agriculture, University of Belgrade, Faculty of Agriculture, University of Novi Sad, Faculty for Biofarming in Bačka Topola, Megatrend University and Faculty of Ecological Agriculture in Sremska Kamenica, Educons University.

Non-formal education

Most of non–formal adult educations and educations of farmers are conducted by non-governmental organizations[53]. However, those educations do not have continuity and they are organized within certain projects funded by national or foreign organizations/ donors.

National Association Serbia Organica has realized a lot of adult educations for different target groups all over Serbia: farmers and potential organic farmers, as well as: unemployed women, young people, consumers. Serbia Organica has also realized Organic internship programme designed for undergraduates finishing bachelor or master studies, and/or graduates.

Serbia Organica has realized educations of human staff of different institutions: professors of secondary agricultural schools, educators of the pre-school institutions, advisors of the agricultural extension, certification bodies.

Continuous education of farmers is provided by legal organizers of group certification (who are also the certificate holders), for their cooperants.

Also, city administration of City of Belgrade provides education for potential organic farmers once a year, since 2015.

City administration of City of Novi Sad has also provided education of organic producers from its territory, for many years.

Occasionally, other local administrations in Serbia organize such educations. Association "Organic garden" organizes courses named "School of organic gardening" for small organic producers who want to practice organic production for their own needs.

For 4 years, local association "Handicrafts of Lužnica", Babušnica has offered trainings in field of organic productions for persons from vulnerable social categories and unemployed women, which are realized by Serbia Organica.

PROMOTION

Exhibition of organic produces within the Agricultural fair in Novi Sad financially supported by MAFWM organized jointly by the Ministry of Agriculture and Serbia Organica since 2011;

International festival of organic products Bio-FEST organized since 2004 by Terra's association from Subotica. Part of festival is organizing round tables and debates and day of open organic farms;

53 Local end regional associations: Terra's association, Subotica; Open University, Subotica, Centre for organic production, Selenča; Vojvodina Organic Agriculture Cluster, Novi Sad; Association Vitas, Ruma; Agro Cluster of Serbia, Novi Sad, Association "Lužničke rukotvorine", Babušnica; „Luka znanja", Novi Sad.
National associations: National Association Serbia Organica, Belgrade, National Alliance for Local Economic Development NALED, Belgrade.

Forum on organic production in Selenča organized since 2006 by the Centre for organic production and in recent years within forum international business meetings Agro Organic B2B are realized

Fair of organic food Milena Tatar in Sopot started in 2012 on initiative of TV show for farmers on RTS "Znanje imanje" in cooperation with Sopot Municipality and Serbia Organica as co-organizer. Fair is a venue of thematic lecturers as well;

Organic live Fest, started in 2012, is a festival of sustainable development that promotes the rational use of resources and develops awareness of healthy lifestyles. Within the festival there is also a fair of organic products;

Open days of biodiversity, started in 2011 in organization of the Institute of Tamiš, Institute "Josip Pančić" and Serbia Organica. Organic production and biodiversity includes thematic congress intended for scientific and competent audience, farmers and interested parties that stresses out the importance of environmental protection and conservation of existing living organisms. Every year lectures and workshops are given on different aspects of organic agriculture and biodiversity on demonstration fields in nature reserves, on farms of small organic and traditional producers.

B 2 B of organic producers organized since 2017 by the Vojvodina's cluster of organic agriculture, Novi Sad;

Days of open organic farms is an event which is organized several times a year by the Serbia Organica.

WHOLESALE AND RETAIL

Domestic market is a growing parameter and it is open for organic food. Organic fresh produces are in favorable condition since they are less imported to Serbia, although lately this changes and shows increase as well. Therefore domestic producers have fewer opportunities to form prices. On the other hand if import of organic produces is greater, domestic consumers will turn to them even if they have domestic substitutes available. For example many retailers are also distributors of organic food.

There are many domestic branded organic products on the market. These are offered in specialized stores and bigger retail chains. The conditions for cooperation with bigger retail chains are greater quantities and continuity of supply. The technological requirements for fresh organic products are the same as for conventional ones. Bigger retail chains cooperate with larger farmers who have larger quantities of produce available, which is why some chains encourage producers to make associations. Specialized stores also cooperate with smaller manufacturers. Some producers of fresh products have indicated that they find it difficult to supply bigger retail chains because of some requirements: for "outpatient" supplies and returns of expired products.

Some of domestic organic brands are: **Give me three** organic apple and pear chips, **Granum** (vegetarian and macrobiotic health organic food products like oils, butters, vinegars, energy bars, crackers; **Volim** (juices, jams and pasta); **Bio Panon** (beef); **Organico** (beans, popcorn, vegetables); **Life organic** (juices and vinegars); **Organica** (dairy products - yogurt, milk, chocolate milk, cheese, sour cream); **Baby KIng** (baby food); **Imperator** (wines); **Naše dobro** (flour and cereal products); **We are one** (superfood).

Based on the opinion of a large number of producers in Serbia the unavailability of specific inputs necessary for production process is a major obstacle. Seeds and planting material can rarely be found on the market, and even so the quantities are insufficient. Fertilizers are also an issue organic farming relies on manure and compost. Since only every second farmer keeps animals, and even then too few of them, the manure available from that source is hardly enough to provide 5-6 ha of land with sufficient nutrients for optimum yields. Commercially available plant nutrition agents and soil enhancers are relatively present on the market, but the issue is their cost and effectiveness for organic farmers. Appropriate and efficient plant protection agents are also difficult to find, so producers often do not have enough knowledge and experience to prevent diseases and pests, which additionally reduces the yields and quality of organic produce. Irrigation is also a problem, particularly for fruit growers due to shortage of water supply.

Organic products are typically sold to wholesalers and to processing companies, and almost 80% of the growers have contracts with them prior to the start of the season.

Direct sales e.g. on the green market, retail stores and via various online shops is growing recently, although is still practiced by less than 30% of the individual farmers. Due to such a system, the mark up in price they obtain for their organic produce is very moderate (with 10-20% on the average) and confirms that added value is not generated on the farm level. Moreover, the products are not readily available on the market. Since there is often a lack of storage facilities, products are on offer mostly during the peak of season, when the growers flood the market. Sorting is only carried out by every second farmer and usually according to size, rarely according to quality. The average buyer of organic produce in Serbia is young family people with children, followed by people with health problems.

Potential for development

Serbia, as a country with excellent agro-ecological conditions that is geographically close to the EU market, has excellent potential for greater development of organic production. However, it is not easy for smaller farmers to reach the standard and meet all requirements. In the first 2-3 years during the conversion period, production investments are large, and they do not yet have a full organic product that has an added value on the market and conversion period product can't be the content of certified organic processed products. Organic farming requires a lot of time in the production, care of crops, protection, fertilization, procurement of adequate machinery and other raw material and inputs. Organic farming involves a lot of manual jobs, and in many parts of Serbia there are no people to get involved. Therefore, in the opinion of Serbian organic farmers, significant financial support for organic sector is necessary.

SUCCESSFUL STORIES

In Serbia, there are many family households, who are making living from organic production. One of them is Šokšić family household (Bio farma Šokšić), from the village Taraš, near Zrenjanin, in Vojvodina, which in 2007 began to produce organic vegetables for about 2ha.

They started selling their products at small fairs in Novi Sad, and when the organic market opened in Belgrade in 2011, they began to sell regularly on the weekends, and there they began to acquire their loyal consumers and expand their business. They also sold in smaller specialized stores in Belgrade and Novi Sad, as well as home delivery. As the business expanded, they began to expand and cultivate the area and in the next few years increased to 10 ha of cultivated land. They improved the productivity by purchasing more modern agricultural machinery. Their organic production is based on a number of species and varieties of root and leafy vegetables, as well as eggs.

They have started to supply larger retail chains, so they now supply the 4 largest retail chains in Serbia, since 2015. This family business, in addition to employing the entire Šokšič family, also employs an additional workforce, 5 full-time workers in the packaging of the product throughout the year, and an additional 10 workers engaged in agricultural work during the season.

Family Šokšić and their organic fields

Organic farm of Pavle Djordjevic, founded a few years ago by a young agricultural engineer from Belgrade, in the village of Valjevska Kamenica, near the town of Valjevo in Western Serbia. He and his colleagues and friends grow fruits, vegetables, chickens, quail birds, on agricultural land of 4,1 hectares. They are processing also and their produce are jam, spreads, dry herbs, and other products and organic products are sold under the brand "Organela".

This farm is unique in the concept they developed.

As Pavle said: "To this day we have had over 1,500 families reach out to us, from mothers to people with health problems, seeking completely pesticides free food, rare plants, and herbs that they can't find anywhere. On the other hand, some people just want a juicy, tasty tomato for their salad. The concept we are presenting to you was created out of these needs.

It works in the following way - we dedicate a garden to you on our farm, on which we are growing exactly what you would like. This means that using our application you can select any species of plant to be grown in your garden. We are offering completely transparent cultivation, so you can visit your garden at any time or watch it live by a web camera. Before the season starts, we create a contract that clearly defines species, varieties, amount of food and the price. Our job is to take care of your garden throughout the season and deliver your produce weekly."

Organic farm of Pavle Djordjevic (watermelon field)

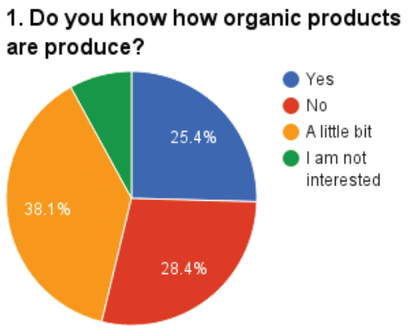
"Dr.Čupić's Eco Household" consists of Dr. Ana Čupić, Doctor of Medicine, Dr. Aleksandar Čupić, Assistant Professor of the Faculty of Transport and Traffic Engineering, University of Belgrade, and their four children. These young people moved from the city to the small town of Sopot, near Belgrade, where they made their dream come true with the formation of an organic farm.

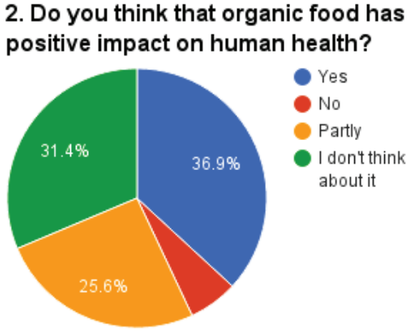
Family Čupić produces organic fruits and vegetable and process their products, on an agricultural area of three hectares. The current offer, which is constantly expanding, contains about 40 types of organic vegetables and fruits. Fruits and vegetables are processed according to traditional recipes. They produce juices, jam, ajvar, salads, spreads, etc. Their organic products are sold under the brand **"Dr.orgAna".** Dr. Ana will soon start to provide healthy nutrition tips, nutrition checks and adequate diet advice. Their products can be purchased in organic shops, specialized stores, trade shows and, also, via social networks, e-mail or telephone for direct orders.

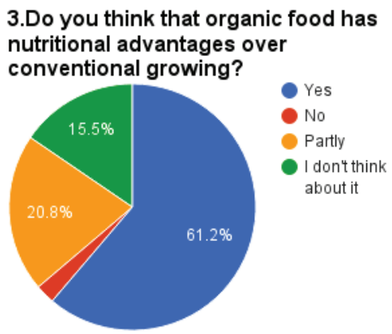
Organic farm of Dr.Čupić's Eco Household

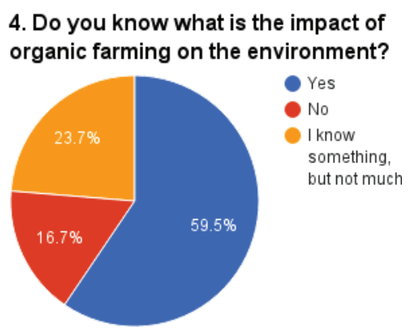
Products of Dr.Čupić's Eco Household

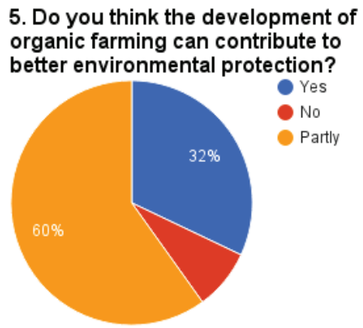
Domestic market of organic products is still underdeveloped despite significant positive changes in the recent years. Awareness of consumers started to rise as well, but mostly in bigger urban environment where organic products are mostly present. Big breakthrough for some years now was when these products could have been found on the shelves of majority of retailers. This way they have become available to most of consumers who could have bought organic products only in several retail shops or some green markets. Online shopping becomes available as well. First specialized market of organic products started to work in mid-2011 in Novi Beograd as a result of cooperation between Public Company City markets and Serbia Organica as a pilot project that soon showed necessity of such place for producers and consumers. Since 2015 City markets of Belgrade have started organic caravans that are periodically set on various Belgrade markets. The biggest demand for organic products is noticed in the bigger cities due to buying power although there are frequent buyers as showed on the graphic below.











Prices of primary and processed products are increased for about 50-300% in comparison to conventional, depending on variety, market position and seasonality. Recently imported organic products are more present on the market, mainly processed but fresh products as well. Prices of some imported processed organic products are lower than domestic, but still this is not always the case. Organic fresh products for now come from domestic production and products of plant origin dominate. Due to lower offer on the market, fresh fruits are being imported. Only in 2015 appeared the first organic meat on domestic market. Bigger retail chains showed interest and demanded bigger quantities, but domestic producers are not capable to provide continuity and quantity leading to rise of import.

Promotion of organic products has been intensified in the past years, but national logo of organic products is still not enough globally promoted. Consumers who have heard for organic products have problems in recognizing them, unless they are marked and visible on shelves. Serbia Organica realized educational promotional campaigns in retails shops in order to raise awareness of consumers on impact of organic products to health and environment, still future activities should be directed toward these aims and advantages of organic products.

Majority of stores selling organic products are located in Belgrade and Novi Sad. Organic food may be found on some green markets, in specialized health food stores and in the retail chains. The consumers are generally insufficiently informed, except when it comes to the term certification of organic production, and they also lack knowledge about how they can identify organic products. On the other hand, there are consumers who think organic farming is something newfangled or trendy and have no trust in certificates.

Value can be added to organic products by insisting on their naturalness and environmental protection. For further development of the local organic market, strong and intensive campaigns with clear communication strategy, directed towards target consumer groups, are definitely needed. Because of all this, and considering the limited volume and value of organic products, and the moderate prospects for domestic growth in the future, their placement on the international market assumes even higher priority for producers.

CONCLUSIONS

Organic production in Serbia has gradually developed for three decades. From the time when it was started by groups of fans and enthusiasts, it has emerged into significant and potent sector of Serbian agriculture, institutionally and legally regulated in accordance with EU regulation. Review and data of the organic agricultural sector in Serbia identify some emerging trends and shows that many actors in the industry are trying hard to advance on the road defined in the Plan for Organic Agriculture Development in Serbia. Just in the last decade of development, the areas under organic production has increased for roughly 10 times and the number of producers for a few dozen times.

During the process of development, the elements of whole value chain have constantly grew stronger, both producers, certification and control systems, competent authorities and NGOs. The last decade also brought the more intensive development of processing industry, domestic market and public consciousness. With founding of the National Association as an umbrella institution 10 years ago, it comes to networking of all stakeholders and more significant promotion of whole sector. Since its foundation, the Association has worked systematically and constantly on an overall development of whole sector.

Also, export value reached about 30 million EUR which shows that there's a high demand for Serbian organic products, both in the EU markets and on the other continents.

Despite its undeniable significant achievements and general eco climatic factors which indicate a vast potential for the development of organic farming, a number of major hurdles and problems still lie ahead and need to be overcome. Generating of capital on all levels of value chain, more efficient use of available foreign funds, efficiency of production, processing and marketing are all important subjects in the further way of developing organic production in Serbia. Sector of organic production in Serbia faces many challenges. Government policy towards the organic sector has to be more determined, with clear, long-term, universal national measures, which would bring the more intensive growth of the sector in the further short period.

On the other hand, Serbia is on its way to the EU and to implementing IPA programs. Within the context of modernizing the economy in general and the agricultural sector in particular, and the need to shape the agricultural sector in such a way that it can integrate itself into the European Common Agricultural Policy framework, organic agriculture finds it hard to achieve a satisfactory level of growth despite great potential and steady growth of main parameters. Plant product portfolio mostly consists of fruits and field crops, with constant growth of cereals and oil seeds production. Most of these products are exported, mostly to the EU, as domestic market development is hampered by the insufficiently increasing purchasing power of consumers. Though still small, trend of intense development of the national market is evident. Demand for organically grown produce exists in many countries and Serbia has excellent eco-climatic and technical conditions to cultivate, in addition to berries and fruits that are traditionally grown, also organic cereals and oilseeds that are in high demand. So far, however, farms engaged in organic farming needed assistance to procure the appropriate machinery, other technical devices and capital, in order to raise production efficiency to levels that ensure their competitiveness on the national, regional, and EU markets. IPA Component V (IPARD) offer investors the opportunity to have more than 60% of their investment financed through IPARD funds. Such a co- financing scheme renders investments into the Serbian agriculture highly attractive. The IPARD program is, therefore, a major chance for the organic sector in Serbia. Through investment support from IPARD, both farmers and processors can begin to increase production efficiency and gradually strengthen the country's role in the European organic industry, building on its existing advantages; uncontaminated soil, renowned and prominent R&D and educational institutions, close ties to specific markets, and along tradition in growing and processing highly sought after products (fruits, berries, vegetables, cereals and oilseeds).

4.4 CROATIA

STATUS OF THE ORGANIC FARMING IN CROATIA

In the professional journal – the Journal of Plant Protection[54] – is stated that in 2001, the year of the first law on organic farming, the number of organic farms in Croatia was 25 and the utilised agricultural area for organic farming was 100 hectares. According to the Rural Development Programme of the Republic of Croatia for the Period 2014-2020, official recording of statistical data started in 2003, when 130 organic farmers were registered and 3,124.06 ha or 0.37 % of agricultural land was under organic production, while ten years later that number increased to 1609 and the area under organic production increased to 40,640.65 or 3.12 % of utilized agricultural land[55]. The Action Plan for Development of Organic Agriculture in the Republic of Croatia for the period from 2011 to 2016 was adopted in 2011 and the goal was to increase the share of organic farming in total agricultural land in Croatia to 8 % by 2016[56].

Data collected by the Croatian Bureau of Statistics[57] shows that there were 4,374 organic farms in Croatia in 2018[58]. The number of organic producers in 2018 increased by almost 9%, as compared to 2017. It was an increase of 351 organic producers compared to the previous year. At the same time, the utilised agricultural area (UAA) for organic farming was 103 166 hectares. This indicator did not show a significant change compared to 2017, as it was an increase of 6,198 hectares. The indicator of

54 "Glasnik zaštite bilja" https://bib.irb.hr/datoteka/877154.Gugi_i_sur._2017.pdf
55 https://www.mrr.hr/files/Program-ruralnog-razvoja-Republike-Hrvatske-za-razdoblje-2014.-2020.-odobrena-ina%C4%8Dica-EN-verzija-7.0.pdf
56 http://www.azrri.hr/fileadmin/dokumenti-download/AKCIJSKI_PLAN_RAZVOJA_EKOLO%C5%A0KE_POLJOPRIVREDE_ZA_RAZDOBLJE_2011-2016.pdf
57 https://www.dzs.hr/
58 No available data at the time of writing this study for the years after 2018

share of areas under organic production in the total utilized agricultural area did not show any significant increase either, as it was 6.94 % in 2018 compared to the 6.46% in 2017. This data shows that the strategic goal of increasing the share of areas under organic production to 8% of the UAA, defined by the Organic Agriculture Development Action Plan 2011-2016, has not been reached yet.[59] This data also shows that there is a great potential for further growth of organic production, especially since the demand for organic production on the global market continuously grows. The same is true when it comes to increasing the number of employees in the agricultural sector. In January 2020 the total number of employed persons in Croatia was 1 518 961, of which 714 091 were women, while only 24 877 were employed in agriculture, forestry and fishing sector, of which 7055 were women. At the same time, the number of unemployed was 131 753, of which 72 635 women. [60]

Data available at the website of the Ministry of Agriculture, based on data of the Croatian Bureau of Statistics[61], shows that the number of agricultural producers and processors has increased significantly since the accession of Croatia in the EU; there was 1,608 producers and 181 processors in 2013, and 4,374 producers and 368 processors in 2018. As shown in the table below concerning the categories of organic products, the most manufacturers are involved in the production of beverages, followed by the production of vegetable and animal oils and fats.

Category of processors of organic products	2013	2014	2015	2016	2017	2018
Processing and preserving of meat and meat products	-	-	-	-	4	5
Processing and preserving of fruit and vegetables	13	33	36	43	70	50
Manufacture of vegetable and animal oils and fats	40	37	37	33	51	82
Manufacture of dairy products	9	8	9	8	16	11
Manufacture of grain mill and starch products	4	8	7	5	13	18
Manufacture of bakery products and pasta	-	-	-	4	5	-
Manufacture of other food products	31	10	40	86	91	118
Manufacture of beverages	45	43	29	35	42	97

Source: Croatian Bureau of Statistics[62]

There is also a significant increase of the utilised agricultural area (UAA) for organic farming since 2013. Data are organized according to the categories of utilisation which are subject to the support under the Measure 11 – Organic farming:

59 The data for 2018 are the last publicly known in the moment of conclusion hereof
60 https://www.dzs.hr/Hrv_Eng/publication/2020/09-02-01_01_2020.htm
61 https://poljoprivreda.gov.hr/statistika-360/360
62 Data available at https://poljoprivreda.gov.hr/statistika-360/360

Total area of organic agricultural land by category (expressed in hectares)	2013	2014	2015	2016	2017	2018
1. Utilised agricultural area (UAA) (2 + 3 + 4)	40 660	50 054	75 818	93 594	96 618	103 166
2. Arable land and orchards	21 013	27 459	34 281	44 147	44 083	50 281
3. Permanent grassland	14 279	16 403	33 613	39 089	40 745	39 575
4. Permanent crops	5 368	6 192	7 924	10 358	11 790	13 310

Source: Croatian Bureau of Statistics[63]

The highest number of farms in 2018 was recorded in Osječko-baranjska County (705), while four counties Osječko-baranjska, Sisačko-moslavačka, Brodsko-posavska and Bjelovarsko-bilogorska together counted 1.722 farms, which is almost 40% of all farms in Croatia in 2018.

Number of organic farming entities by county, 2018.	
Zagreb	179
Krapina-Zagorje	61
Sisak-Moslavina	366
Karlovac	316
Varaždin	70
Koprivnica-Križevci	116
Bjelovar-Bilogora	317
Primorje-Gorski Kotar	159
Lika-Senj	187
Virovitica-Podravina	218
Požega-Slavonija	219
Brod-Posavina	334
Zadar	185
Osijek-Baranja	705
Šibenik-Knin	63
Vukovar-Srijem	198
Split-Dalmatia	207
Istria	109
Dubrovnik-Neretva	69
Međimurje	101
City of Zagreb	195

Source: Croatian Bureau of Statistics[64]

63 Total area of organic agricultural land includes also the areas in the transitional period. Data available at https://poljoprivreda.gov.hr/statistika-360/360,
64 Total area of organic agricultural land includes also the areas in the transitional period. Data available at https://poljoprivreda.gov.hr/statistika-360/360,

As shown in the table below, organically grown cereals are dominated by wheat, spelt and corn, rapeseed represents one third of total organically produced oilseeds and almost half of the organic fresh vegetable production is fruiting vegetables production.

ORGANIC PRODUCTION OF ARABLE CROPS IN TONNES, REPUBLIC OF CROATIA, 2018, ACCORDING TO THE CATEGORIES	
1. Arable land and gardens (2 + 11 + 12 + 16 + 26 + 27)	144563
2. Cereals (excluding rice) (3 + 6 + 7 + 8 + 9 + 10)	52882
3. Wheat and spelt (4 + 5)	21579
4. Soft wheat and spelt	21463
5. Durum wheat	116
6. Rye	357
7. Barley	4114
8. Oat	2206
9. Corn, dry grain	21226
10. Other cereals (including triticale, sorghum, millet, buckwheat, etc.)	3400
11. Dried pulses	65
12. Root crops (13 + 14 + 15)	302
13. Potatoes (including seed potatoes)	240
14. Sugar beet (excluding seed beet)	-
15. Other root crops (including sweet potatoes, fodder kale, fodder beet, fodder parrot, etc.)	62
16. Industrial plants (17 + 23 + 24 + 25)	25646
17. Oilseeds (18 + 19 + 20 + 21 + 22)	21707
18. Rapeseed	8898
19. Sunflower	6047
20. Soy	5594
21. Flax for oil	36
22. Other oilseed (including poppy seeds, pumpkin oil, sesame, mustard, etc.)	1132
23. Tobacco	-
24. Aromatic, medicinal and spicy herbs	3939
25. Other industrial plants including energy crops (including chicory etc.)	-
26. Green fodder from arable land and gardens	88923
27. Fresh vegetables (including strawberries) (28 + 29 + 30 + 31 + 32 + 33 + 34)	2151
28. Cabbages	84
29. Leafy and stem vegetables (excluding cabbage)	69
30. Fruiting vegetables (including melons and watermelons)	929
31. Root, tuber and onion vegetables	428
32. Fresh legumes	235
33. Other fresh vegetables (including sweet corn)	370
34. Strawberries	36

Source: Croatian Bureau of Statistics

In 2018, there was 13310 hectares under organic permanent crops, of which 7750 hectares of areas on which the transitional period was completed and the rest was still in transitional period. The most common were nut plantations.

AREA OF ORGANIC PERMANENT CROPS IN HECTARES, REPUBLIC OF CROATIA, 2018			
	In a transitional period	Transitional period completed	Total
1. Permanent plantations (2 + 12 + 13 + 14 + 15)	5560	7750	13310
2. Fruit, total	5006	5384	10390
3... of which apples	235	304	539
4... of which pears	59	48	108
5... of which peaches	12	32	44
6... of which nectarines	3	8	11
7... of which apricots	26	77	104
8... of which cherries	143	411	554
9... of which plums	303	566	869
10... of which berries (excluding strawberries)	368	303	671
11... of which nuts	3822	3578	7401
12. Citrus fruit	3	13	15
13. Vineyards	133	869	1002
14. Olive groves	406	1466	1872
15. Other permanent crops (including nursery gardens, Christmas trees, carob, mulberry, etc.)	12	18	30

Source: Croatian Bureau of Statistics

Among the organically farmed livestock, the most common are cattle. Consequently, cow's milk dominated among the organic products of animal origin.

NUMBER OF HEADS OF ORGANICALLY FARMED LIVESTOCK BY SPECIES, REPUBLIC OF CROATIA, 2018	
1. Cattle	19613
2. Pigs	1887
3. Sheep	62315
4. Goats	4199
5. Poultry	1870
6. Ungulates	2388
7. Bee communities	2022

Source: Croatian Bureau of Statistics

Organic products of animal origin in tonnes, Republic of Croatia, 2018.

1. Beef, veal	1456
2. Pork	141
3. Mutton	571
4. Goat	17
5. Cow's milk	2846
6. Sheep's milk	73
7. Goat milk	175
8. Cheese	43
9. Honey	31

Source: Croatian Bureau of Statistics

In 2018, 183 000 organic eggs were produced for consumption[65]

Administration, Legislation and Organic certification

The first law regulating the organic farming in Croatia – Law on Organic Production of Agricultural and Food Products[66], was adopted in 2001, 12 years before Croatia's accession to the EU. In 2010 it was replaced by the Law on Organic Farming Production and Sale of Organic Farming Produce[67]. This Law prohibited the use of terms "organic", "ecological", "biological" or their abbreviations such as "bio" and "eco" for the labelling and the presentation of produce that have not been produced in accordance with the said Law.

As Croatia is the EU member state since 2013, the Law in question ceased to apply at the time of the accession. Since then, the organic production in Croatia is carried out in accordance with the Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products, the Council Regulation (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control (OJ L 250, 18.9.2008), and the Ordinance on Organic Production (Official Gazette No 86/13).[68] The National Agricultural Policy continued to evolve in accordance with the Common Agricultural Policy (CAP) which is transferred into the original document for farmers, including the organic farmers – Rural Development Programme of the Republic of Croatia for the Period 2014-2020, while the EU legislation is transferred into national legislation.

Basically, Croatian organic producers, including farmers, are subject to the EU Regulation on the production, distribution and marketing of organic goods, as well as on labelling[69].

65 Source: Croatian Bureau of Statistics https://www.dzs.hr
66 http://extwprlegs1.fao.org/docs/html/cro23651.htm
67 https://narodne-novine.nn.hr/clanci/sluzbeni/2010_12_139_3532.html
68 https://www.mrr.hr/files/Program-ruralnog-razvoja-Republike-Hrvatske-za-razdoblje-2014.-2020.-odobrena-ina%C4%8Dica-EN-verzija-7.0.pdf
69 https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/legislation_en

In short, this means that organic farming complies with the strict standards for the use of chemicals meaning that no synthetic fertilisers and pesticides are allowed, as well as that there are strict rules on animal medication. Instead, according to the Regulation from 2007, the fertility and biological activity of the soil shall be ascertained by multiannual crop rotation, including legumes and other green manure crops, and by application of livestock manure or organic material, both preferably composted, from organic production. Fertilisers can be used only if included in the list of products and substances authorised by the European Commission. Hormones or hormone derivatives are not allowed for breeding purposes in aquaculture. Furthermore, the use of GMOs is prohibited in organic production, except for veterinary products whose labels do not indicate the presence of GMOs, because such presence is due to technically unavoidable presence that is below the labelling threshold of 0,9%. Strict rules for packaging, transport and storage of products are also observed in order to prevent any possible mixture or exchange with non-organic products and to ensure the identification of the organic products[70]. The mandatory conversion period of organic crop production takes two years for arable land and three years for perennials plantations, with the possibility of shortening the conversion period in accordance with the Ordinance on organic production (Official Gazette No 86/13) and the Commission Regulation (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control[71].

Organic farming in Croatia is further regulated by the Law on Agriculture[72], specifically by the Chapter IV "Ecological production" of the Title VII. The Article 102 regulates that legal and natural persons engaged in organic production, processing, marketing, import and export of organic products must be registered in the Register of Organic Producers. This Register is kept by the Paying Agency for Agriculture, Fisheries and Rural Development (PAAFRD)[73] as an official public record in electronic form. The list of organic producers in the form of the simple Excel table can be accessed at the website of the Ministry of Agriculture[74]. The list currently contains 5743 entities, the first being registered in 2002. Furthermore, this Law regulates obligations of the organic farmers and the control system in organic production. The control bodies, currently 13 of them, are listed at the official website of the Ministry of Agriculture[75] with their code number, contacts and websites. The control bodies are authorised by the Ministry of Agriculture. The Register of Organic Producers and the Register or the control bodies are further regulated by the Ordinance on Organic Farming issued in 2016, which also regulates the appearance of the national label of the organic product[76] and the form of Croatian code number used with the EU eco label which is HR-EKO-00. The zeros stand for the reference number of the control body starting with 01. Both registers are further regulated by the Ordinance on the Control System of Organic Agriculture[77].

70 https://eur-lex.europa.eu/legal-content/HR/TXT/HTML/?uri=CELEX:02008R0889-20181112&from=EN
71 https://www.mrr.hr/files/Program-ruralnog-razvoja-Republike-Hrvatske-za-razdoblje-2014.-2020.-odobrena-ina%C4%8Dica-EN-verzija-7.0.pdf
72 https://narodne-novine.nn.hr/clanci/sluzbeni/2018_12_118_2343.html
73 https://www.apprrr.hr/
74 https://poljoprivreda.gov.hr/istaknute-teme/poljoprivreda-173/poljoprivreda-175/ekoloska/popis-subjekata-u-ekoloskoj-poljoprivredi/208
75 https://poljoprivreda.gov.hr/istaknute-teme/poljoprivreda-173/poljoprivreda-175/ekoloska/popis-ovlastenih-kontrolnih-tijela/3671
76 The text „Hrvatski eko proizvod" means "Croatian eco product" but in the English form it must be written with the word "eko" in Croatian – "Croatian eko product"
77 https://narodne-novine.nn.hr/clanci/sluzbeni/2020_01_11_203.html

National label for the organic product

In Croatia all organic products are labelled with the “Euro-leaf” plus the code number, while the national label is optional.

Financial support

Organic producers can apply for support according to the Rural Development Programme of the Republic of Croatia for the Period 2014-2020. The said document declares that support is given in order to encourage new farmers to take obligations that go beyond the requirements of cross compliance and prescribed management requirements, and to encourage farmers who have already accepted these commitments to continue with organic farming. It is furthermore explained that this measure deals with the prevention of soil erosion and the increase of soil fertility and soil organic matter; maintenance of water, soil and air quality; conservation of landscape and biodiversity, while contributing to preserving and enhancing ecosystems related to agriculture and forestry; improving water management, including fertilisers and pesticides management; preventing soil erosion and improving soil management; promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors, with a focus on reducing greenhouse gas and ammonia emissions from agriculture; fostering carbon conservation and CO2 sequestration in agriculture and forestry[78].

The measure in question is the Measure 11 – Organic farming divided into two sub-measures: M11.1. Payment to convert organic farming practices and methods and M11.2. Payment to maintain organic agricultural practices and methods[79], and the duration of commitment period for the beneficiary is five years, with the possibility of an annual extension of the commitment period[80]. The support is defined as compensation to the beneficiary for loss of income and for additional costs as a result of compliance with the special conditions that go beyond the minimum prescribed requirements, and it is given in the form of a grant as an annual payment per hectare. For converting to organic farming practices and methods the amount of the support is 347.78 €/ha for arable land, 576.94 €/ha for vegetables, 868.18 €/ha for perennial plantations and 309.94 €/ha for permanent grassland[81]. For maintaining organic agricultural practices and methods the amount of the support is 289.82 €/ha for arable land, 480.78 €/ha for vegetables, 723.48 €/ha for perennial plantations and 258.28 €/ha for permanent grassland. The beneficiaries must comply with the definition of an active farmer[82] and the application may be submitted if the farm’s agricultural area is minimum 0.5 ha, while the minimum area of the Land Parcel Identification System (LPIS) parcel must be 0.05 ha[83]. The Croatian Land Parcel Identification System is ARKOD[84]. The ARKOD system is an integral part of the Integrated Administration and Control System (IACS) by which Member States of the EU grant, monitor and control direct payments to farmers. The registration in the ARKOD system for farmers is free of charge and it is done at the regional offices of the Paying Agency for Agriculture, Fisheries and Rural Development (PAAFRD)[85].

Post 2020 prospective

In 2018 the Ministry of Agriculture in cooperation with the World Bank launched a wide consultation process, which should result in the Agriculture and Fisheries Development Strategy 2021-2027[86] within the framework of the EU Common Agricultural Policy (CAP) for the next programming period. The document[87] drafted by World Bank Group employees and consultants for the purpose of developing this strategy estimates that about 23% of farmland in Croatia is at high risk of soil erosion, while Croatia is one of the EU member states with the lowest share of land under the Agri-environment-climate Measures that are less than 1%. This document predicts that nearly 40% of the overall CAP[88] post-2020 budget shall focus on climate and environmental activities and that income support shall be conditional on more stringent agricultural practices beneficial to the climate and the environment, while the EU member states shall also be required to allocate at least 30% from their budget for rural development in order to finance environmental and climate protection measures.

Getting certificate

The first steps for a Croatian farmer to become an organic producer are the same as for any new farmer: entering in the Register of agricultural holdings and registering in the ARKOD system. Both registrations are done in the regional offices of the Paying

78 https://www.mrr.hr/files/Program-ruralnog-razvoja-Republike-Hrvatske-za-razdoblje-2014.-2020.-odobrena-ina%C4%8Dica-EN-verzija-7.0.pdf
79 https://www.apprrr.hr/mjera-11-ekoloski-uzgoj/
80 https://www.mrr.hr/files/Program-ruralnog-razvoja-Republike-Hrvatske-za-razdoblje-2014.-2020.-odobrena-ina%C4%8Dica-EN-verzija-7.0.pdf
81 https://www.apprrr.hr/podmjera-11-1-placanja-za-prijelaz-na-ekoloske-poljoprivredne-prakse-i-metode/
82 As defined in the Article 9 of the Regulation (EU) No 1307/2013
83 https://www.mrr.hr/files/Program-ruralnog-razvoja-Republike-Hrvatske-za-razdoblje-2014.-2020.-odobrena-ina%C4%8Dica-EN-verzija-7.0.pdf
84 http://www.arkod.hr/
85 http://www.arkod.hr/onama/
86 https://poljoprivreda2020.hr/
87 https://poljoprivreda2020.hr/wp-content/uploads/2019/08/Dijagnosti%C4%8Dka-analiza-Poljoprivreda.pdf
88 Common Agricultural Policy

Agency for Agriculture, Fisheries and Rural Development (PAAFRD)[89]. In order to apply for the support under the Measure 11 – Organic Farming, the farmer needs to be registered in the ARKOD system. In order to do that, the farmers should bring to the Agency documents proving their right of use of a particular piece of land and, with the help of Agency staff, they should identify all parcels on which they cultivate by using previously made digital aerial photographs of the land. The next step is to enter the farm in the Register of organic producers. To be registered, the farm production shall comply with the regulations regarding organic production made by the authorised control body. Currently there are 13 control bodies in Croatia authorised by the Ministry of Agriculture.

In accordance with the Rural Development Programme of the Republic of Croatia for the Period 2014-2020, a farmer entering the organic farming system must request the first control carried out by one of the control bodies authorized by the Ministry of Agriculture. The control body issues a record of the first inspection, which the farmer shall submit to the Agency together with an application for registration in the Register of Organic Producers. Then the Agency issues a decision on registration in the Register of Organic Producers. The control body, pursuant to the expert inspection, validates a certificate indicating the product status (organic production or product in the transitional period). The control must be carried out by the authorized control body at least once a year. The farmer may use the "organic production" label only after the end of the transitional period, which is at least two years for arable land, meadows and pastures and three years for perennials. Products in the transitional period must be labelled as „product in the transitional period"[90]. The certificate for products lasts maximum 12 months. The national label of the organic product is used voluntarily and may only be placed after the end of the transitional period.

The steps of the certification process are explained on the websites of all control bodies, and the application forms and the price lists are also online.

The first review consists of, as it is explained on the website of one of the control bodies: "The entity must provide access to all parts of the unit and all workplaces, personnel, equipment, subcontractors, and all reports and related documentation, provide access to the necessary data, give insight into the results of the quality assurance system, allow sampling to detect production of non-organic products, accept observer participation."[91]

The price comparison shows that price range for arable land, gardens, orchards, olive groves and vineyards is about 20 – 50 Euro per hectare, depending on the number of hectares (less hectares means a higher price). For mushrooms is about 130 Euro per object and cycle. For breeding, fattening and milking cattle is about 2 – 13 Euro per head and for breeding, fattening and milking sheep and goats about 2 – 5 Euro per head, depending on the number of heads. For beehives is about 1 – 2 Euro per hive. To this the costs of expert's travel, daily allowance and possible accommodation are added.

89 https://www.apprrr.hr/upisnik-poljoprivrednika/
90 https://www.mrr.hr/files/Program-ruralnog-razvoja-Republike-Hrvatske-za-razdoblje-2014.-2020.-odobrena-ina%C4%8Dica-EN-verzija-7.0.pdf
91 https://www.hrsume.hr/index.php/en/ecological-production/certification-of-products

EDUCATION

Formal education

The Organic farming is receiving more attention in higher education than in secondary schools. Agriculture or one of its fields can be studied at 9 higher education institutions in Croatia; Faculty of Agriculture at University of Zagreb, Faculty of Agrobiotechnical Sciences at Josip Juraj Strossmayer University of Osijek, University of Split, University of Zadar, College of Slavonski Brod, Polytechnic "Marko Marulić" in Knin, Polytechnic in Požega, Polytechnic of Rijeka and Križevci College of Agriculture[92]. All of them are public institutions.

The Faculty of Agriculture in Zagreb offers undergraduate study program in Organic Agriculture and after completing it, students may continue their studies at the study programme of Organic Agriculture with Agritourism[93]. At the Faculty of Agrobiotechnical Sciences in Osijek one may study at the two-year graduate study programme in Organic Farming[94]. The University of Split has the study programme Mediterranean Agriculture. In the fifth semester, students can choose "Organic and Integrated Production" as an elective course.[95] The Department of Ecology, Agronomy and Aquaculture at the University of Zadar offers the undergraduate study programme of Applied Ecology in Agronomy[96]. The College of Slavonski Brod offers the four-semester graduate professional study programme of Ecological Agriculture and Rural Development[97]. The "Organic Agriculture" is one of the elective courses at the undergraduate study programmes Karst Agriculture – Plant Production and Karst Cattle Breeding at the Polytechnic "Marko Marulić" in Knin[98]. On the third year of the professional study programme of Viticulture-Oenology-Pomology at the Polytechnic of Požega one of the courses is "Organic Fruit Growing and Viticulture"[99]. One of the compulsory courses at the Specialist Professional Graduate Study of Winemaking at the Polytechnic of Rijeka is "Organic Viticulture". The Polytechnic of Rijeka offers the Professional Undergraduate Study of Sustainable Agritourism, where one of the compulsory courses in the first semester is "Fundamentals of Environmental Agriculture". It is followed by "Organic Agriculture" in the fifth semester, which is also compulsory[100]. The Undergraduate Professional Study of Agriculture at the Križevci College of Agriculture in the first semester has the compulsory course "Fundamentals of Ecology with Agroclimatology" and the elective course "Organic Agriculture" in the fourth semester[101]. This College also offers the Specialist Graduate Professional Study of Sustainable and Organic Agriculture[102].

For the purpose of this paper, programmes of five agricultural secondary schools were

92 https://www.azvo.hr/hr/visoko-obrazovanje/visoka-ucilista
93 http://www.agr.unizg.hr/en/article/602/organic_agriculture
94 http://www.fazos.unios.hr/hr/nastava/studiji-nastava/diplomski-sveucilisni-studij/ekoloska-poljoprivreda/
95 http://www.medp.unist.hr/program-studija/
96 https://www.unizd.hr/poljodjelstvo/english/study-programmes/applied-ecology-in-agronomy
97 https://www.vusb.hr/upload/Graduate_professional_study_Ecological_agriculture_and_rural_development.pdf
98 https://www.veleknin.hr/veleknin/web/index.php/cro/Studiji/Poljoprivreda-krsa/Studijski-program/Biljna-proizvodnja-studijski-program
99 https://www.vup.hr/vinogradarstvo-vinarstvo-vocarstvo/kolegiji/3_godina/ekolosko_vocarstvo_i_vinogradarstvo/skripte/default.aspx
100 http://www.veleri.hr/
101 https://www.vguk.hr/hr/466/Program+preddiplomskog+Stru%C4%8Dnog+studija+Poljoprivreda
102 https://www.vguk.hr/hr/group/40/Specijalisti%C4%8Dki+diplomski+stru%C4%8Dni+studij+Poljoprivreda

analysed[103]. At the Agronomy School in Zagreb qualifications can be obtained for vocation: Agricultural Technician. It is a four-year programme and in the first grade students have the compulsory subject "Organic Agriculture and Sustainable Development". Another four-year programme is Agricultural Technician Gardener and in the third grade students have the subject "Protection of Human Environment". The students attending the programme of Agricultural Technician Phyto-pharmacist, in duration of four years, have the same subject in the first and in the third grade. The Agritourism Technician is another four-year programme. The subject "Organic Agriculture" is one of the mandatory subjects in the third grade. Education for Gardeners lasts three years, and there is no subject on organic gardening in the curriculum[104].

The Agricultural, Food and Veterinary School Stanko Ožanić in Zadar and the Agricultural and Food School in Požega offer qualifications for Agricultural Technician, Agricultural Technician Phyto-pharmacist and Agritourism Technician as well. The school in Zadar offers also the programme for Gardener[105], while the school in Požega offers the Fruit Grower – Wine Grower – Vintner programme without specific subject about organic growing.

The Vocational School of Agriculture in Vinkovci[106], the Agricultural and Veterinary School in Osijek[107] and the Agricultural and Technical Secondary School in Opuzen[108] also offer the programme for Agricultural Technician and Agricultural Technician Phyto-pharmacist. The school in Vinkovci offers the programme for Gardener.

In general, the same programmes are offered for adult education. Besides secondary schools that adult students pay in order to attend an educational programme, the education for organic farmers may be free of charge, but only for adult unemployed persons. These training programmes are designed as part of the projects funded by the European Social Fund and implemented by schools/colleges alone or in partnership with NGOs and other organisations[109]. Schools/Colleges for adult education often offer a range of agricultural programmes: beekeeper, fruit grower, winegrower, olive grower, manager of a family farm, and some of them have recently started to offer a training programme for organic farmers at a price of EUR 530[110].

In addition to the already mentioned ordinary adult education programmes in the field of organic agriculture, some innovative programmes that go a step further have recently emerged. The training programmes in the field of permaculture and urban horticulture have been designed within the project "PERMA-HORTI - Zadar Initiative for Permaculture Design and Urban Horticulture" implemented by the Agricultural, Food and Veterinary School Stanko Ožanić Zadar, the Agency for Rural Development of Zadar County - AGRRA, NGO "Porat", the University of Zadar, the Primary School Voštarnica in Zadar and the public company "Nasadi" Ltd. The programme was free of charge and aimed at the unemployed women. The training lasted 150 hours: 55 hours of theoretical study and 95 hours of practical work.

103 The analysis included only the programs of the schools that include the word "agriculture" in the name of the school and can be accessed on the web page of the Ministry of Science and Education http://mzos.hr/dbApp/pregled.aspx?search=2&appName=SS. Vocational schools often offer agricultural programs, but the analysis of all their programs goes beyond the possibilities of this study.
104 http://agronomska-skola-zg.skole.hr/Naslovnica/Upisi
105 https://ppvs-ozanic.hr/
106 http://ss-poljoprivredno-sumarska-vk.skole.hr/
107 http://ss-poljoprivredna-veterinarska-os.skole.hr/
108 http://www.ssopuzen.hr/naslovnica
109 Some examples may be accessed at https://www.youtube.com/watch?v=QUgLnekgqLE, http://iep.com.hr/osposoblj-eko-proiz-voca-povr-bilja, https://ekostartvukovar.com/2019/06/27/prijavite-se-za-besplatno-osposobljavanje-za-poslove-u-poljoprivredi/
110 Example may be accessed at https://www.pou.hr/programi/poljoprivreda-prehrana-i-veterina/osposobljavanje/ekoloski-poljodjelac

-49 unemployed women from Zadar County participated in the training programme. They gained new skills and knowledge in the field of permaculture and urban horticulture and their competitiveness in the labour market has increased. They also had the opportunity to learn how to start their own business and their own agricultural production and how to apply for agricultural incentives and to write project funded by EU funds. With the completion of this programme, we have greatly increased the employability of these unemployed women, as there is currently a high demand for horticultural workers and organic products in the market, and permaculture itself is even a step forward than organic farming, as absolutely no use of protective agricultural products is allowed in permaculture, explained Senad Salihović, project manager (AGRRA).

The Agricultural, Food and Veterinary School Stanko Ožanić Zadar plans to continue with this training course once a year, if enough students show interest.

-Furthermore, 10 students of the Primary School Voštarnica, all of them students with disabilities, were involved in horticultural works since the horticultural practice has therapeutic effects and at the same time equips students for employment. The Primary school Voštarnica and the Agricultural, Food and Veterinary School included elements of the newly created horticulture and permaculture programme in their curricula, as well as education about green professions for sustainable development and start-ups, thus providing students with the opportunity to acquire new skills and knowledge and increase their competitiveness in the labour market, said Senad Salihović.

Non-formal education

Free courses on organic agriculture are frequently organised by the Directorate for Professional Support for the Development of Agriculture and Fisheries of the Ministry of Agriculture.[111] Lectures and courses on organic farming are often organised by the Local Action Groups, NGOs and even private companies[112].

In the past decade, there has been no shortage of organisations, associations, initiatives and self-organising groups involved in organic production or advocating for organic production. The local communities most certainly benefit from their ideas and enthusiasm, and they are undoubtedly leaders in raising public awareness of the benefits of organic farming.

Promotion

Among the associations that brought together organic producers for the innovative initiative stands out Istrian eco-friendly product[113]. They started to organise a solidarity organic market in Pula on a weekly basis together with the Solidarity Ecological Group

111 https://www.savjetodavna.hr/tecajevi/
112 Some examples may be accessed at http://lag-zagora.hr/index.php/2017/04/12/poziv-na-nastavak-edukacije-akademija-ekoloske-poljoprivrede-2/, https://lag-baranja.hr/lag/, http://donjikraljevec.hr/web/2018/02/poljoprivredni-tecaj-dr-rudolfa-steinera-citanje-i-otkrivanje-2-dio/
113 https://iep.com.hr/

Pula in 2013 , a year later in Rovinj and in 2016 in Novigrad Istarski.[114] The Association of Ecological Producers of Dalmatia was founded in 2015 with the aim of promoting organic production and encouraging the development of organic agriculture in four counties: Split-Dalmatia, Dubrovnik-Neretva, Zadar and Šibenik-Knin.[115] They organise the fair of organic products in Split "Eko Fjera" once a year.

One of the longest running eco fairs is the ESO - Ecological Fair Opatija (small eco market), which is exhibited only by producers with eco certificates. This fair has been organised for eleven years by the NGO "Žmergo" [116] every second Saturday of the month in front of the main city market, and over the years the fair has brought together about 30 organic producers offering the following certified products for healthier living:

- olive and pumpkin seed oil
- lavender oil and lavender products
- marmalades, jams
- hemp and hemp products (tea, powder, biscuits…)
- fruit brandies and liqueurs
- cheese
- meat products: salami, sausages, bacon, etc.
- honey and honey products
- ruit and vegetable seedlings
- chokeberries, raspberries, blackberries and other berries
- tangerines, oranges, lemons, and citrus products (arancini, oranges, etc.)
- cleaning products[117]
- natural cosmetics

The fair is a sales educational event that aims to bring people closer to sustainable thinking and introduce them to the concept of ecological rural development and the development of small family farms.

The Eco Fair in Čazma[118] has been held for six years in a row. It is a fair that brings products and innovations in eco-certified production from all over Croatia, organised by the association Eko Čazma and with the support of the Croatian National Tourist Board, the Tourist Board of the City of Čazma and the City of Čazma.

Eko Fjera[119] is an organic products fair that has been held in Split for four years now at the locations of Prokurativa and the Diocletian's Palace. Organised by the Public Institution for the Coordination and Development of the Split-Dalmatia County, RERA SD, and the Association of Ecological Producers of Dalmatia - Dalmatia EKO, this fair brings together the largest number of organic producers with a wide range of products.

The Dalmatia EKO Association launched the EKO Pazarić on the ground floor of the Mall of Split this fall. These are small weekend fairs of eco-certified products of their members, while the range of products is a real pleasure: dried figs, fresh seasonal fruits and vegetables, flour, buckwheat, rye, industrial hemp products, sweetened almonds, juices, arancini, chickens eggs, steamed meat, olive oil, spreads, teas, spices, etc. The Dalmatia EKO has also launched the Solidarity Exchange Group.

Another organic producers' fair with their products and cultural and artistic programmes is the Eko Arena[120] Fair in Bedekovčina, which has been organised for three years in a row in the sports hall of the Bedekovčina Secondary School (Krapina-Zagorje County). This fair is organised by the Ministry of Agriculture, the City of Zagreb, Bedekovčina Secondary School, Bedekovčina Municipality and Dr. Rudolf Steiner Centre.

During the year, a large number of fairs are held in Croatia.[121] The biggest and with the most visitors is definitely ZeGeVeGe[122], which takes place every year in September in Zagreb on the main city square and lasts for three days, while the Autumn in Lika (Jesen u Lici)[123] is an event that has already been held for 21st time in October in Gospić, in duration of three days. For the ninth year in a row, at the Biofach[124] fair in Nurnberg, ten Croatian organic producers are introducing their products in the demanding global organic food market whose estimated annual turnover is EUR 55 billion. One may find the following companies at the fair: Annapurna, Art of Raw, Berry, Ecogos, Exploria, Hermes International, Jan Spider, Luxor, Vegetariana and Viridis.

Organic producers may advertise and sell their products through the Burza hrane[125]. This specialised portal connects buyers and manufacturers from Croatia, Slovenia, Germany, Austria and the EU. Fino.hr[126] is an online store offering natural homemade foods. A popular online store is also Finoteka[127]. In addition to the online store, there are also physical stores in Zagreb. Annapuarna[128] is a homemade organic wheat and soybean based product. They also have a web shop and offer free shipping all over Croatia for orders of a certain amount. Bio & Bio has its own web shop as well as shops in few cities in Croatia (Zagreb, Rijeka, Split, Varaždin). It should be emphasized that these stores sell organic products from domestic producers, but only in smaller quantities. Most of these are foreign brand products. Biosvijet d.o.o.[129] is a specialized organic products store in Zadar that, like the Bio & Bio store, has organic products, mostly from the foreign producers. The others are Greencajg[130] , Priroda i društvo[131] , Zdravi dućan[132], **Žitnica** zdrave hrane[133] and Bio Planet[134] which is an organic bulk food store in Split.

114 https://iep.com.hr/eko-trznica
115 http://www.dalmacijaeko.hr/o-udruzi.html
116 https://zmergo.hr/
117 http://www.pero.bio/
118 http://www.cazma.hr/vijesti/6-eko-sajam-20-22-09-2019/
119 https://www.dalmacijaeko.hr/uploads/2/2/0/6/22069576/eko_fjera_prezentacija_2019_final.pdf
120 https://www.savjetodavna.hr/2019/11/19/3-sajam-ekoloskih-proizvoda-eko-arena/
121 http://www.sajmovi.eu/hr/kalendar-sajmova/travanj/hrvatska
122 Events information are available at their website https:// www.zegevege.com/
123 https://gospic.hr/dogadjanja/21-jesen-u-lici-program-dogadanja/
124 https://www.hgk.hr/eko-proizvodaci-devetu-godinu-zaredom-na-sajmu-biofach-izvjestaj
125 https://burzahrane.hr/
126 http://fino.hr/
127 https://www.finoteka.com/
128 http://annapurna.hr/
129 http://www.bio-svijet.hr/
130 https://www.greencajg.hr/
131 https://prirodaidrustvo.hr/
132 http://zdravi-ducan.hr/
133 www.zitnica.hr/oznaka-proizvoda/ekoloski-proizvod/
134 https://bioplanet.hr/

Eco Estate Zrno[135] is the oldest Croatian eco-estate that now has its own web shop and store of local organic products in Zagreb. They offer a wide range of products - from fresh fruits and vegetables to winter supplies (preserved food), unleavened bread, cakes and sandwiches.

Zelena[136] is a store in Pula that offers products from local organic producers, and has recently launched its own web shop. **Špajza**[137] is a shop in Rijeka that, in addition to products from local manufacturers, is based on the principle of zero waste, so you can bring your own packaging for purchase.

Uberi ovo[138] is an online store offering organic products and operating under the motto „From Garden to Door", while Mrkvica[139] is a healthy and homemade food store chain in Zagreb. The web shop Tvornica zdrave hrane[140] mainly offers products from foreign producers, and wine and beer are among organic products. More and more family run farms are offering their products via their own web shops, and one of them is Eko Veselić[141], who also has delivery in Zagreb and Velika Gorica.

The need for a strong umbrella organisation of organic producers is expected to be met by the Association of Croatian Organic Agriculture Producers founded in 2017. They have brought together 11 NGOs from 12 counties[142] and they organise lectures, educations and exchanges of seeds. The Agro Club portal[143] has been providing useful and educational information to farmers since 2008, and organic farming is not an uncommon topic. Among interesting projects was certainly the Eco Entrepreneur[144], an information portal that offered a range of educational content including short webinars on a range of topics. The portal was created as part of the Organica.net project implemented by the Creative Development Associations "Slap". It is still online, and some posts and webinars are still interesting and useful. The webinar on organic beekeeping may be found on the website of the GRASS Croatia project implemented by the Croatian Agricultural Agency[145]. The avant-garde in thinking of sustainable solutions that go beyond regular organic farming is certainly the ZMAG (Green network of activist groups), a non-governmental organisation formed in 2002 and located in the village Vukomerić, near Zagreb. Their most important project is the educational centre – the Recycled Estate in Vukomerić, designed by the permaculture principles implementing reused and natural construction materials. They teach and host a wide array of courses and workshops, such as natural building (energy efficient architecture using natural materials, biotecture - green roofs and vertical gardens etc.), appropriate technology (DIY solar hot water systems, DIY biodiesel, efficient wood burning stoves etc.), natural cosmetics, food fermentation and everything about sustainable gardening and farming. They also organise permaculture design courses and the permaculture academy[146] and have published several useful publications on these topics that are available on their website[147] free of charge.

135 http://www.zrno.hr/
136 http://www.zdravozelena.hr/
137 https://spajza.hr/
138 https://uberiovo.hr/
139 https://mrkvica-domaci-produjevi.business.site/
140 https://www.tvornicazdravehrane.com/?gclid=EAIaIQobChMI9ZWu1cuO6AIVyaiaCh3mVACpEAAYASAAEgJM6PD_BwE
141 https://eko-veselic.com/?page_id=1478
142 http://hsep.hr/udruge-clanice/
143 https://www.agroklub.com/
144 http://www.ekopoduzetnik.com/
145 http://grasscroatia.hpa.hr/webinari/
146 https://www.zmag.hr/english
147 https://www.zmag.hr/bazaznanja

Lectures and educations on permaculture are also often organised by the NGO Permaculture Dalmatia from Split[148]. Those interested in biodynamic agriculture can visit the Centre dr. Rudolf Steiner in Donji Kraljevec, where Steiner was born, or attend one of the lectures or workshops about the principles of biodynamic agriculture in their organisation[149].

WHOLESALE AND RETAIL

In the report on organic market in Croatia, published in 2019 by the United States Ministry of Agriculture – Foreign Agricultural Service (FAS), the total Croatian market for organic food is estimated to over 100 million EUR with increasing tendencies and with most of the products being imported[150]. This report classified Croatian buyers of organic product as "regular customers", households with double income and no children and new trend seekers with a special reference to millennials as "more environmentally conscious, preferring organic food products and brands and companies that promote a 'green' philosophy".

In addition to the already mentioned organic products, the organic products are sold in small private organic shops, in major supermarket chains run by Interspar, Spar, Kaufland and Konzum, drugstore chains DM, Müller and Bipa. There are also organic franchises, such as BIO&BIO[151] and a growing number of online stores[152]. The advantage of online shopping is that these products are available to customers in small towns, where no such supermarkets or drugstore chains can be found.

Conventional producers

For the purposes of implementing this project, conventional food producers were interviewed, all of them from Zadar County. It is interesting to note that despite a small number of examinees – only 5, none of them, according to their own allegations, have or want to have experience with GMO seeds. They state that they usually buy their seeds or seedlings, but strive to buy domestic seeds or seedlings, however, since Croatia lacks reproductive material, they also need to import seeds. One examinee pointed out that her decision whether to buy domestic or imported seed often depended on the price of the seed.

When asked if they use pesticides, four of them said that they were using Gaucha, Actara 25 WG, Nano Powder, while one of them said that he did not know exactly what he was using, but he knew that it was environmentally friendly. When it comes to fertilizer, everyone uses manure (horse and sheep), but they also use NPK15 and Urea.

Even though it is expected that climate change will reduce crop yields in Croatia by 3 to 8 percent by 2050, it does not seem that many examinees in this study are concerned.

148 http://permakultura-dalmacija.hr/
149 Events information available at their website https://centar-rudolf-steiner.com/novosti/
150 https://www.fas.usda.gov/data/croatia-organic-market-croatia
151 https://www.biobio.hr
152 Such as https://www.garden.hr/, https://www.terra-organica.hr/, https://www.greencajg.hr/, https://www.tvornicazdravehrane.com/

Three of them said that they thought climate change would not raise awareness of the organic food production benefits, while one said that he did not know and, therefore, was not concerned. Four of them also believe that climate change may cause production of more food to the detriment of food quality.

When asked how much they will need to invest in organic production compared to the current production, four examinees said that the price increase would be from 30% to 50%, while one examinee gave no answer because he grows lavender and the prices are slightly different. The same producer believe that he will not have to invest additional time or learn new skills when switching to organic lavender farming, while other examinees considered that they would certainly need additional education, but probably not new skills.

Four growers believe that switching to organic production will not create any new jobs and only one of them is convinced that a higher price for organic products will be achieved.

One answer is the same, everyone thinks that people in the wider community, even at the national level, are not aware of the benefits of organic production, and if they are, they cannot afford it all the time.

When asked how many products they produce and whether they try to produce more, the answers were the following:

- Lavender and lavender products – “Up to 1000 kg, I do not try to produce more than that”
- Honey and honey products – “It depends on the season”
- Potatoes – “Depending on the year - I do not want to expand the range of products I produce”
- Vegetables – “15 kinds; several types of lettuce, cauliflower, cabbage, broccoli, potatoes, tomatoes, sweet potato. I do not have the capacity to produce more than what I produce now”
- Olives, medicinal herbs – “15 different products, I can produce more, but I do not need to”

ORGANIC PRODUCERS

Interviews were also conducted with seven organic producers, four of them from Zadar County, two from Zagreb County and one from Bjelovar-Bilogora County. None of them have both organic and conventional farming.

Only one of them uses pesticides – Baturat, which is allowed in organic food production, while the range of products used as fertilizers, is much wider, as they state: manure (horse, sheep, beef, pig and chicken), Ferti+, Foliar Organic Fertilizers, Bioagenasol, Bioilsa 777, Zoberaminol, Ecologio 20L, Kuality 20L, Whitefer, Proeko, stone dust, clay, compost and Vinodar bio pelleted manure.

Organic food producers, like conventional ones, have no experience with GMO seeds, and when it comes to the seeds that they are using, they point out that it is quite difficult to find indigenous seeds in the domestic market because there is not enough seeds. Only one producer, of seven producers, produces his own seeds, but in insufficient quantities, so he needs to buy both domestic and imported material. One producer likes to exchange seeds and seedlings, which has become very popular in recent years. In fact, even in cities one can observe a growing trend of organising education and workshops on seed production and seed exchange, organic food production, permaculture and self-sustainability. Only one grower points out that he imports seeds, but only from organic producers.

Unlike conventional producers, organic food producers believe that climate change will lead to increasing awareness of the benefits of organic food not only in Croatia but in general, and four of them believe that climate changes may cause production of more food to the detriment of quality.

When asked to estimate how much they had invested in organic production compared to what they would have invested in conventional production, the answers range was from 20% to 60% (depending on what they produce). One examinee said that the expenses of goats breeding were 100% higher than conventional breeding since she feeds her goats only with organic food, and if she does not produce enough food on her own farm, she needs to buy it from another organic producer. All seven growers believe that their organic farming has created new jobs (even seasonal ones), not only for them and their family members, but for other workers too because additional workforce is needed (during harvest).

Furthermore, all seven producers agree with the statement that they are continuously investing in education, whether in formal education, such as attending different courses, reading different literature, attending seminars, fairs and conferences or sharing knowledge and experience with more experienced producers. Three organic producers are satisfied with the price of their products on the market, while four are dissatisfied. One thinks that the prices of his products are even lower than conventional ones.

When asked how many products they produce and whether they are trying to produce more, the answers were the following:

- Olive oil, wine, figs – “The yield depends on the year, but I produce up to 30 000 litres of oil, 30 000 litres of wine and about 20 000 kg of figs. For now, I do not intend to expand production”
- Vegetables: lamb’s lettuce, peppers, tomatoes, eggplant, cucumbers, spinach, chard, rucola, broccoli, pumpkins; fruits: melons and watermelons; and different vegetable products including tomato juice. This producer has 18 eco-certified products and wants to expand his product range, while also working on raising new crops
- Figs, quince, tangerine, sour cherry, plum. This producer has a palette of eco-certified products – “Increased production depends on raw material and market demand”

- Olive oil, potato, tomato, goat's milk and cheese – this producer does not want to increase production
- Chokeberry and chokeberry products (tea, powder, juice, dessert wine, liqueur) – "We are still trying to establish our position in the market, while our goal is to place our products outside of the Republic of Croatia, so we are still not thinking about increasing production"
- Olive oil - 400 litres – The producer wants to increase production
- Siberian blueberry – 90 000 kg per year – "So far, no plans on increasing production"

When asked where they place their products, organic producers gave some interesting answers. All manufacturers sell a good portion of their products through web shops, small local organic and healthy food stores, as well as at fairs that are not necessarily just eco fairs. Two of them listed stores such as Spar, Interspar, DM, Bio & Bio, Pick This, Bio World, Duty free shop at Zadar and Split Airport, Gligora (chain of stores), Crodux (gas station), and big eco fairs in Dusseldorf, Berlin, Budapest etc. One producer continuously exports to Sweden. She also states that "some organic food stores do not protect domestic producers, but more than 90% off their offer consists of imported foods and other products". She adds that "some local stores tend to charge up to 35% for the best placement of the products of domestic producers on the shelves, which greatly increases the price of the products and leads to poor sale and dissatisfaction of both the dealer and the producer." According to the same producer, one of the problems is also "the payment that is often made after 90 days".

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The villages are an exceptional opportunity for the development of organic farming business. There is currently a growing awareness of organic farming in the region, and this is helping more producers to start producing organic and more and more buyers seeking organic products.

But, the organic agriculture is still underdeveloped. It is expressed through the decline in land under organic production and all the negative effects that it brings.

The reasons for this worrying trend can be divided into three categories:

- Insufficient education
- There is low or insufficient level of implementation of non-formal education by labor universities, employment centers, training centers, etc. in each of the agricultural areas in the countries. But also, insufficient representation of organic production content in the curricula of high schools and faculties. There is a lack of educational materials in the field of organic production and lack of exchange of information from the region.
- Low consumer confidence in the organic production control system and protection of their rights and interests
- There is insufficient support for organic farmers, but also retailers of organic products.
- Weaknesses in the promotion and marketing of organic products.
- There is still insufficient consumer awareness of the benefits of consuming organic agricultural products. It is utterly important to have appropriate communication with consumers. Insufficient promotion of organic farming is resulting in low public awareness of organic food. Consumers are not aware of the organic principles and philosophy and the differences in organic and nonorganic production, or the nutritional and health value of organic food. Furthermore, organic farming and a healthy lifestyle are not adequately present in the public nor promoted in the education system as well. As a result, the interest of consumers in buying organic products is low. Also, the organic market is underdeveloped and there is a lack of specialized organic food stores, especially in smaller settlements.

5.2. RECOMMENDATIONS

- Our key recommendations for dealing with the challenges that are detailed in the study are following:
- New policies to develop organic agriculture
- Developing new official national policies to encourage the growth of organic farming is a precondition for organic farming to develop in the targeted countries. Organic farming is a relatively new topic for which national support is justified to enable organic farming to develop to the point where it can function independently and competitively, but also the authorities can assist the restructuring and learning process involved in converting from conventional to organic farming.
- Education on organic agriculture
- Running an organic farm requires high degree of knowledge and skills which in the targeted countries are still limited and sporadic. Systematic technical support and training systems for organic farmers need to be set up, as farmers must be able to acquire these skills and knowledge. The recommendation is to establishing training centers on local level and a network of showcasing farms, as well as setting up local operational groups under the rural development programs of the ministries of agriculture.
- Leasing state-owned agricultural land and subsidizing young farmers and give preference to organic producers

- Specific assistance for organic farmers is important if their produce is to be competitive, especially during the conversion period. The state can lease agricultural land and subsidize young farmers. Also, the state can finance all or part of the cost of certification. This could be particularly helpful to smallholders, for whom the expense could be an obstacle to certification.
- Increasing marketing and promotional activities
- Organic farming must develop in step with progress in technical knowledge, but also with the development of the market. At the same time as organic farming develops, marketing channels and methods must make it possible to distribute output at prices compatible with the cost of production, while avoiding fluctuations. There is growing demand for organic products on the domestic, regional and global markets, so by signing bilateral or multilateral agreements on mutual recognition of certificates with countries in the region and the EU, the possibilities for development of the organic market would increase and the trade in organic products with countries in the region and the EU would increase as well.