

## The State and Areas under Organic Vegetable Production in the Republic of Serbia

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### Abstract

Due to extremely favourable soil and climate conditions, vegetable production has been traditionally developing in the Republic of Serbia. This study presents the areas under organic vegetable production in Serbia in the 2012-2015 period. In 2015, vegetable production, based on organic principles, was performed on the area of 170.5 ha, with the greatest potential in the region of the Province of Vojvodina (80%). The smallest areas with organic production of vegetables were recorded in the City of Belgrade. Organically produced vegetables mainly consist of bean, popping maize, potato, Jerusalem artichoke, gourd and pepper. In spite of poorly developed market not only of vegetable production, but the entire sector of organic food production in Serbia, the number of organic food producers has been rapidly growing and with the adequate investment, credit–monetary and export support by the government, vegetable production could become the most important production in our country.

*Key words:* regions, producers, price, market

### Introduction

Achieving ecological sustainability is a major challenge of the food system in the 21<sup>st</sup> century. A number of negative effects caused by conventional agriculture have led to ever growing needs of the population across the globe for healthier environment, and consequently numerous directions of the development of agriculture, including ecological, i.e. organic agriculture, have been developed (Popović et al., 2016).

Due to great consumption of energy and material inputs, conventional agriculture has led to the biggest threats to the whole environment, and therefore organic agriculture has become the most productive and at the same time the safest form of the sustainable food production system (Golijan and Veličković, 2015; Golijan, 2016). Production of health-safe food is a priority for the development of agricultural production in vegetable, fruit and grape growing, as well as in animal husbandry, which is possible by the system of organic agricultural production (Njegovan et al., 2011; Veličković and Golijan, 2015). Of the total number of registered organic producers, 95% are engaged in the plant production, while only 5% produce fish and meat products (Vehapi, 2016; Golijan and Popović, 2016).

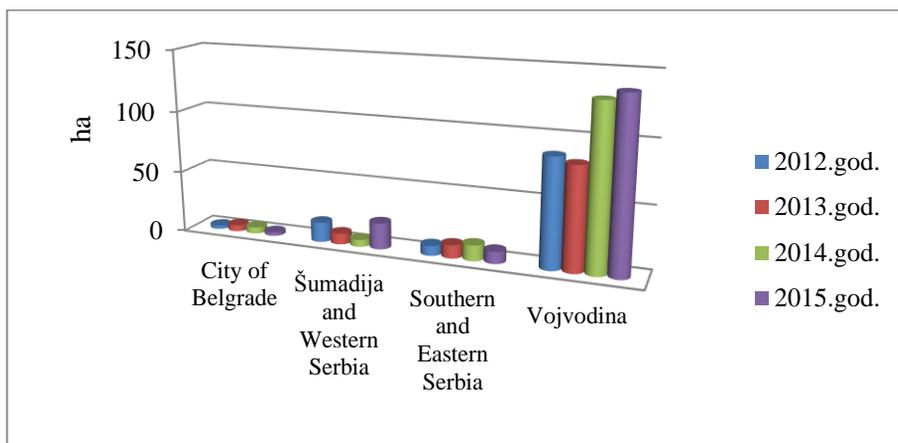
The aim of this study is to present the state and prospects of organic food production in Serbia, its areas and market supplies, because despite the trend of increased demand for organic products in the world market, producers still fail to provide sufficient quantities of these products.

### Areas under organic vegetable production in the Republic of Serbia

Organic vegetable production in the Republic of Serbia in 2015 was performed on the total of 170.5 ha (Ministry of Agriculture and Environmental Protection, 2016), wherein the most significant and greatest production was carried out in the region of Vojvodina with the total share of 80% or 136.59 ha. In comparison to 2012, the areas in 2015 increased by 56.76 ha. The smallest areas with organic production of vegetables were in the Belgrade municipality - the area in 2012 amount to 2.92 ha, while its share in 2014 was 3%, i.e. 5.1 ha (Graph. 1).

According to the most recent data provided by the Ministry of Agriculture and Environmental Protection (2016), 0.41 ha was under conversion in 2015, while, 2.6 ha had an organic status, hence it can be concluded that the total areas with organic vegetable production in the Belgrade region decreased by 2.08 ha (3.02 ha in 2015). Areas somewhat greater than in the Belgrade municipality were located in the regions of southern and eastern Serbia (9.68 ha). It is important to state that organic vegetable production in this region was lower by three ha in 2015 than in 2014 (9.68 ha vs. 12.68 ha). The greatest production in this region was concentrated in the Zaječar District.

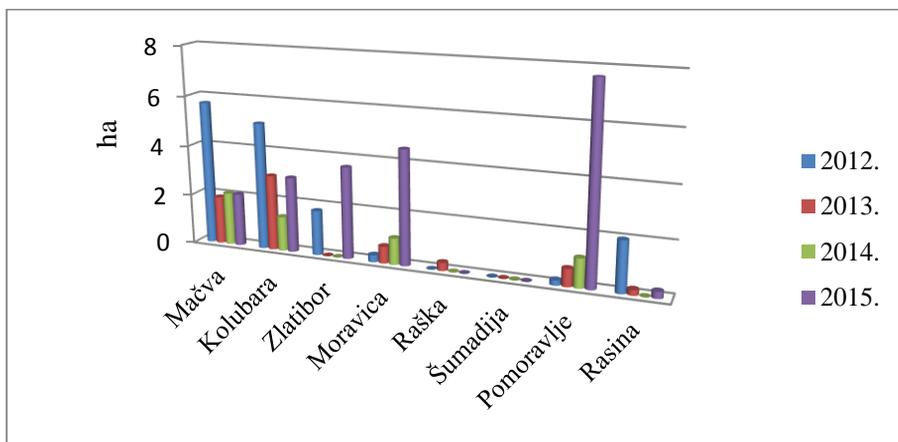
However, areas decreased from 5.95 ha to 2.01 ha in 2015. For the time being, there are no registered organic producers in the Danube River Basin District. Furthermore, before 2015, there were no registered organic producers in the Jablanica District.



Graph. 1. Areas under organic vegetable production (ha) across the regions in the 2012-2015 period

*Површине под органском производњом поврћа (ha) у различитим регионима у периоду 2012-2015 година*

The region of Šumadija and western Serbia, with a share of 12%, ranks the second in the production of organic vegetables. In just one year (2014-2015), the areas under this type of production were tripled (by 15.55 ha). The most important organic vegetable production was performed in the Pomoravlje District (7.65 ha), while the Raška and Šumadija Districts lacked it completely (Graph. 2).

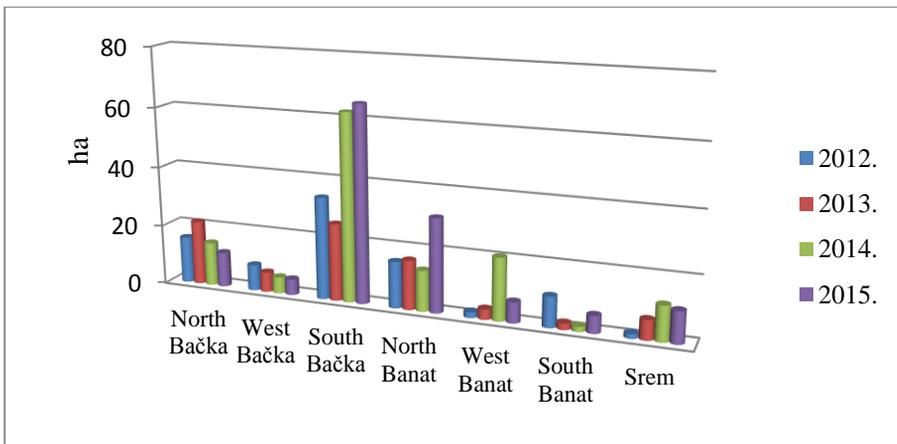


Graph. 2. Organic vegetable production (ha) in the regions of Šumadija and Western Serbia in the 2012-2015 period

*Површине под органском производњом поврћа (ha) региону Шумадије и западне Србије у периоду 2012-2015 година*

The greatest organic vegetable production was performed in the region of Vojvodina (136.59ha). The fact that there was not a single district without organic vegetable production in Vojvodina is what distinguishes this region from the above mentioned.

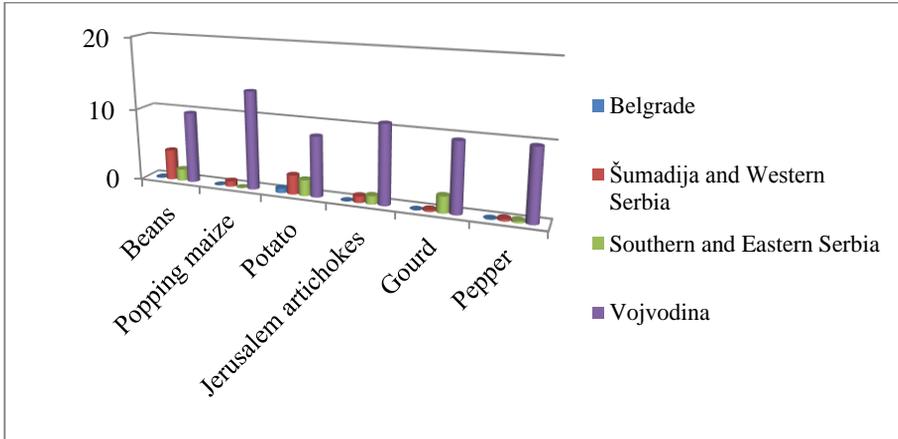
The South Bačka District (65.3 ha) is a leading district in this region, followed by the North Banat District (Graph. 3), then the North Bačka District, Srem District, Central Banat District, South Banat District and West Bačka District. Organic vegetable production in Serbia is characterised by a trend of permanent growth, and thus areas under this type of production were increased by 16.91 ha in comparison with the areas in 2014 (153.59ha).



Graph. 3. Organic vegetable production (ha) in the region of Vojvodina in the 2012-2015 period  
*Органска производња поврћа (ha) региону Војводине у периоду 2012-2015 година*

The production of vegetable species in the Belgrade municipality was established in areas smaller than a hectare, but in 2013, French bean was produced on the largest areas (2 ha). String bean, pea, potato, tomato, French bean and onion were mostly produced in Šumadija and western Serbia, while potato, French bean, gourd and Jerusalem artichoke were produced in southern and eastern Serbia. Vojvodina was a region with the greatest production of organic potato (8.27 h), popping maize (13.49 ha), French bean (9.76 ha), pepper (9.73 ha), gourd (9.51 ha), carrot (8.26 ha) and cabbage (6.66 ha) and it was also the only region in which artichoke, fennel, chickpea, lentil and asparagus were produced.

With regard to the whole territory of the Republic of Serbia, the following vegetable species were grown over the largest area: French bean (15.64 ha), popping maize (14.25 ha), potato (13.74 ha), Jerusalem artichoke (12.84 ha), gourd (12.04 ha), pepper (10.38 ha) and onion (9.4 ha) (Graph 4).



Graph. 4. Distribution of most produced vegetable species in regions of Serbia (ha) in 2015

*Расподјела повртних врста са највећом производњом (ha) у регионима Србије у 2015 години*

Although the market of organic food in Serbia is poorly developed, the number of organic food producers has been rapidly growing. Based on the unique records of the Ministry of Agriculture and Environmental Protection of the producers involved in organic production, and according to the 2014 Report of authorised control organisations, a total of 81 producers in Serbia were engaged in the production of organic vegetables.

#### Prospects, advantages and disadvantages of organic vegetable production in the Republic of Serbia

Cropping practices applied in organic plant production should prevent or reduce to a minimum the pollution of the environment (Article 12 of the Law on Organic Production, No. 30/10). Natural conditions for the development of organic vegetable production are extremely favourable in the Republic of Serbia. Our country became a member of the OECD Fruits and Vegetables Scheme at the plenary session of the OECD (Organisation for Economic Cooperation and Development) held in 2008, during the visit of the OECD Evaluation Team.

On that occasion, Serbia was granted a permit to actively participate in the international foreign trade of fresh fruits and vegetables, as well as the right to issue international certificates (Vlahović et al., 2010).

Besides, Serbia is obliged to introduce the OECD Standards, as well as to amend laws related to the compliance of national standards with international standards (OECD/UNECE) that cover quality of fresh vegetables. Serbia would hereby become more competitive in the international market, which would be a great stimulus to producers to actively participate in increasing production not only in the national market, but also in increasing the entire export of vegetables and their products to international markets. In order to maintain and preserve the principles of sustainable development, i.e. multifunctionality in agriculture, our country has implemented numerous strategies for agriculture and rural development. One of them is the "Master Plan for Sustainable Development of Fruška Gora 2012-2022", which, among other things, focuses on the expansion of organic vegetable production (Njegovan et al., 2011).

In order to increase production and diversity of supply of organic vegetables, Vlahović et al. (2010) have recommended the introduction of vegetable growing on areas greater than the existing ones - at least close to 50 ha. Moreover, despite favourable agroecological conditions, the authors have emphasised the existence of barriers in our country that limited the spread of organic vegetable production, such as: little accessible knowledge about conventional and organic production of vegetables, poor government policy related to organic production, potential consumers are uninformed about the benefits of organic vegetables, organic market is narrow and disorganised (Vlahović and Štrbac, 2007).

Disproportionately greater demand for organic products than supply leads to their high price (Golijan and Popović, 2016). The high price of these products varies over countries and product categories, and the price of organic vegetables in Serbia is greater by 50-100% than the price of conventionally produced vegetables (Kalentić et al., 2014). Oferman and Nieberg (2000) have given an example of the high price of organic potato in European countries that could vary from 50 to 500% in comparison to the price of conventionally produced potato. The total value of organic sales in Serbia reaches approximately 40 million dollars (not including imported organic food) (Vehapi, 2015). The average annual expenditure for organic food per capita in Serbia is much lower than in developed countries (just 5 dollars) (Willer and Lernoud, 2014). However, the price is one of the most important reasons for the limited purchasing power of the population of our country, because price elasticity in Serbia is very distinct, which results in a small number of consumers willing to pay 80-100% higher price of organic products than of conventionally produced products (Vehapi, 2016).

## Conclusion

Agroecological conditions in the Republic of Serbia are exceptionally favourable for growing all types of vegetables. The largest areas with organic vegetable production are cultivated with potato, popping maize, cabbage, carrot, pepper, tomato, French bean, gourd, garden beet, onion and Jerusalem artichoke. Vojvodina with the area of 136.59 ha is a leader among producers in the sector of organic vegetable production. As demand for these products in international and national markets have been growing and is almost unlimited, farmers growing this type of products have a great potential.

However, while prices of organic products are much lower in Serbia than in economically developed countries in the region and the world, due to low salaries, i.e. weak purchasing power, the price of these products are still expensive for domestic consumers. The organic food and vegetable market in Serbia is poorly developed in comparison with the economically developed countries world-wide, but despite this, the number of producers of organic vegetables has been growing rapidly. In order to improve this sector of agricultural production not only in the country but in the world too, financial and marketing support of the state is necessary, as well as a greater development of distribution channels for these products and raising awareness of the population about healthy and safe food.

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# Стање и површине под органском производњом поврћа у Републици Србији

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## Сажетак

Услед знатно повољних земљишних и климатских услова, повртарска производња традиционално се одвија у Републици Србији. У раду је приказан однос површина под органском производњом поврћа у Србији у периоду од 2012. до 2015. год. Производња поврћа по органским принципима у 2015. год. одвијала се на површини од 170.5 ха, са највећим потенцијалом у региону Покрајине Војводине (80%). Најмање површине под органском производњом поврћа заузима Град Београд. Органским системом у нашој земљи највише се производе пасуљ, кукуруз кокичар, кромпир, чичока, тиква и паприка. Упркос слабо развијеном тржишту не само повртарске производње, већ читавог сектора органске хране у Србији, број њихових произвођача убрзано расте, те би уз адекватну инвестициону, кредитно–монетарну као и извозну подршку државе, повртарска производња могла постати један од водећих производних потенцијала наше земље.

*Кључне ријечи:* региони, произвођачи, цијена, тржиште

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