

## TRENDS IN ORGANIC RASPBERRY MARKET IN UKRAINE AND WOLRDWIDE

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### *Abstract*

*The purpose of the paper is the analysis of the main trends in organic agriculture, based on the research of the world markets of organic agricultural products and specificities of the organic raspberry cultivation in Ukraine. Definitely Ukraine has credible prospects for gaining leading positions on global market of the organic production. In the paper there were determined the main risks in doing business, which is related to the organic raspberry cultivation, and which could be classified into three main groups: natural and climate risks; manufacturing risks and market risks.*

*Key words:* organic production, organic raspberries, agriculture, organic lands, the world market of organic products

### INTRODUCTION

In recent years, Ukraine and the World have experienced a growing dynamics of an agricultural branch development, such as fruit and berry crops cultivation on industrial scale [9].

It is worth highlighting that the current experience of the Ukrainian agrarian enterprises in the sphere of organic berries cultivation is not enough. The factors which determine the efficient level of use and increase of agricultural enterprises' potential for developing the organic berries cultivation business, particularly of raspberry, in Ukraine and worldwide, need more thorough scientific research.

Organic farming is an opportunity for Ukraine to pass to the Green economy [10].

### MATERIALS AND METHODS

Dialectic method of knowledge and systemic approach to studying economic phenomena and processes serve as a theoretical and methodological basis of the research. There have been utilized the following methods of scientific research, as: induction and deduction for the sake of attaining objectives set by the scientific research, in particular, in order to study and calculate the impact of the

relevant factors on the possibilities for cultivating organic berry. Analysis and synthesis have been utilized for detailing the object of research by means of dividing it on separate parts. Classification was used for systematizing the factors of impact on the given branch potential forming. In addition to that, the economic and statistic methods (in particular, dynamic lines, analytical aggregating etc.) have been used for determining the trends of changes of the separate indicators in this branch. Table methods have been used for the visual representation of the research's outcomes. Comparison, as a method, has been utilized during the analysis of the situation with prices on the markets of agricultural products in Ukraine and worldwide.

### RESULTS AND DISCUSSIONS

**The general indicators of the world raspberry markets. Ukraine's positions.**

Berries cultivation comprises about 6 percent of the corresponding products value in the general structure of fruit and berry crops production in Ukraine. Growing demand on foreign markets, primarily, on the markets of the European Union countries, favors the berry cultivation enlargement.

Researching the geography of places, employed for raspberry cultivation, it would be right to underline that its production is the most common in the European countries, specifically in Poland, Germany, France, United Kingdom, Serbia, Montenegro, Hungary and Ukraine. The relatively new countries with rather favorable conditions for raspberry cultivation and, consequently growing volumes of its production, can be found in North America, in particular USA and Canada, where berries consumption as a flavoring to other types of products, for instance, milk ones, is popular, given the high purchasing power of the local citizens. In addition, raspberry cultivation is being started in countries, which are situated in other climate zones and even latitudes, for example in subtropical Mediterranean region of Europe, particularly in Spain, Portugal and

Southern Italy, and also in arid regions of the tropical zone of North Africa, specifically in Morocco and Algeria. Raspberry has become quite popular also in East Asia, primarily in China and South Korea. In South America, raspberry is the most popular in Chile, and among the countries of Africa in the South from Sahara, raspberry is cultivated in Kenya. Besides that, raspberry is cultivated in Turkey, Cyprus, Israel, Azerbaijan, Iran, in Fergana valley region (Eastern Uzbekistan, Kyrgyzstan and Tajikistan) and also in Taiwan and in even in New Zealand [5, pp. 145-179].

According to the Food and Agriculture organization (FAO), the worldwide harvest of raspberry has reached 795 thousand tons in recent years. More than 75 percent of that volume being produced by top-5 countries of the world raspberry production list.

Table 1. Top 5 countries in the World by raspberry production (thousand tons)

	2014	2015	2016	2017	2018	2018 to 2014, %
<b>Russian Federation</b>	144.0	137.8	151.7	133.2	165.8	115.1
<b>Mexico</b>	35.6	65.4	112.7	120.2	130.2	365.4
<b>Serbia</b>	61.7	97.2	113.2	109.7	127.0	205.8
<b>Poland</b>	125.9	79.9	129.1	104.5	115.6	91.9
<b>United States of America</b>	103.5	119.3	117.2	102.8	99.3	95.9

Source: Calculated by authors based on the data from [8].

Among the EU countries, the largest producer of raspberry is Poland with 115.6 thousand tons. The biggest producer of raspberry in the Western hemisphere is the USA, which produces 95.9 thousand tons. Mexico, situated in the tropical climate zone, is the second largest producer of raspberry in the world. It produces more than 130 thousand tons of raspberry. Russia and Serbia carried out 165 and 127 thousand tons, occupying the 1<sup>st</sup> and 3<sup>rd</sup> places for raspberry production in the world.

Nowadays, the total cultivation of berries in Ukraine amounts to 130-135 thousand tons. However, only 15 percent of berries in Ukraine is being produced at industrial facilities. The cultivated areas with raspberry in Ukraine account for only 20 thousand hectares. Mostly, they are used for planting strawberry, raspberry and current. The

average yield of berries in Ukraine is equal to about 6,000 kg per hectare. The largest producers of berry in Ukraine are Vinnyts'ka, Dnipropetrovs'ka, Donetsk, Zhytomir'ska and Kyiv'ska regions.

Raspberry is one of the most popular berries in Ukraine taking into account the production level. In recent years, Ukraine has surpassed 31 thousand tons of raspberry annually, and occupies the 7<sup>th</sup> position in the world list with 4 percent share of the global market. In 2018, Ukraine produced 35,150 metric tons of raspberry, having the average yield of 7,170 kg per hectare. Besides this, in 2018 China reached the top position of raspberry production, having collected 75 thousand of it with an average yield of 5 tons per hectare. It is worth underscoring that the productivity of the Ukrainian lands, occupied for raspberry cultivation, is in the top, but for Mexico,

England and Scotland and, though not by much, however still surpasses the level of most other great producers by the productivity per square unit.

The export price for the Ukrainian raspberry is relatively lower in comparison to the producers from other countries and is about US \$1,000-1,100 per ton. For instance, the price tag per ton of the exported raspberry from one of the most dynamic competitors of Ukraine, which is Bosnia and Herzegovina has been about US \$1,600 – 1,700 per ton of berries. Meanwhile, the producers from Poland has priced their raspberry at approximately US \$1,300-1,400 per ton, while the German export raspberry price has comprised US \$7,000.

The recent most dynamic production growth of raspberry has been seen in Mexico, USA, Bosnia and Herzegovina, also raspberry production has been growing in a bit smaller scales, but by an annual dynamics of 40 percent, in Bulgaria, Belgium, Norway, the Netherlands, Moldova and Finland.

According to the outcomes of 2018 the official international raspberry market reached the volume of 480 thousand tons. In terms of

physical production, the volume of the international raspberry market had grown by 23 percent during 2013-2018, and the average price tag for it had decreased by 27 percent for that period.

### **The world markets of organic agricultural products and specificities of the organic raspberry cultivation in Ukraine**

The development of organic raspberry production in Ukraine is taking place within the context of the national organic products market growth on the backdrop of this type of agricultural products getting more popular globally. In particular, in pursuance to the data from the Federation for the organic movement of Ukraine, since 2002, when the development of the organic production began in this country, the number of the corresponding certified enterprises has grown 100 times until nowadays and the total area of the certified lands has tripled.

By the results of 2019, there were 72.29 million hectares of organic lands cultivated worldwide (Table 2). Australia is a leader for the surface of the organic lands in the world, having 35.7 million hectares.

Table 2. Top 10 countries of the World by the square of organic lands in 2018 (million hectares)

	2008	2017	2018	2019	2019 to 2008, %	2019 to 2017, %
<b>Australia</b>	11.96	35.65	35.69	35.69	298.41	100.11
<b>Argentina</b>	4.08	3.39	3.63	3.67	89.95	108.26
<b>China</b>	1.74	3.02	3.14	2.22	127.59	73.51
<b>Spain</b>	1.17	2.08	2.25	2.35	200.85	112.98
<b>Uruguay</b>	0.67	1.88	2.15	2.14	319.40	113.83
<b>France</b>	0.39	1.74	2.04	2.24	574.36	128.74
<b>United States of America</b>	1.96	2.03	2.02	2.33	118.88	114.78
<b>Italy</b>	1.06	1.91	1.96	1.99	187.74	104.19
<b>India</b>	1.02	1.78	1.94	2.3	225.49	129.21
<b>Germany</b>	0.8	1.37	1.52	1.61	201.25	117.52
<b>World</b>	34.25	69.49	71.51	72.29	211.07	104.03

Source: Calculated by authors based on the data from [8].

By the results of 2019, the square of the organic lands in Ukraine constituted 468 thousand hectares, which put it on the 20<sup>th</sup> position by that indicator among the countries of the world. During the last decade, the respective lands square has grown 2.5 times and for the last 5 years the corresponding numbers have increased by 50 percent.

Approximately 48 percent of these lands are used for crops cultivation, 16 percent for oil seeds and 4.6 percent are used for beans, while only 2 percent of them are occupied by vegetables and merely 0.6 percent are allotted for cultivating fruits, encompassing organic raspberry. It is worth noting that Ukraine has got some potential for the enlargement of the

organic lands square, as the country has 550 thousand of the certified wild terrains.

The Law of Ukraine “On the agricultural products and raw materials production and turnover”, issued in 2013, provisioned the basic points of functioning and regulated the market of organic agricultural products. The adoption of the Law of Ukraine “On the fundamental principles and requirements for the organic production, turnover and branding of the organic products” in 2018 became a supplement to the legislative essentials with the clarification of many aspects for its development [3].

One of the key factors, which impacts the organic farming success in the current conditions of its development is the people’s purchasing power. Purchasing power of Ukrainian customers is considerably lower than in the EU countries, and this translates into statistics of the organic products consumption per capita. Such level of the organic products consumption in the EU member countries, in average, yields to 53.7 euros per capita, while in Ukraine the corresponding number constitutes only 3 euros per capita. According to the other data, the respective figure for Ukraine is merely 68 cents, whereas, in average, in the European countries, it yields to 40.8 euros, while in the EU members, it amounts to 60.5 euros. However, the internal Ukrainian market of the organic products has been actively growing. In 2019 the internal market of the organic products aggregated US \$ 24.3 million, and if we compare that with the 2005 figures, it may be seen that then there was sold US \$200 thousand of organics. However, if we compare these figures with the ones from the leading countries of the world in the sphere of organic production in 2019, in Germany, the volume of the organic products on the internal market reached approximately US \$13 billion. Export to the foreign markets, primarily to the EU member countries remains to be the main driver for the national agricultural organic production growth. In 2019, the export of the organic products from Ukraine to foreign markets summed up to about US \$189 million. The export structure comprised crops, beans, oil cultures and berries. Organic

butter, cereals and dairy products were exported in a less extend. Wheat and corn were the main organic exported crops and the EU countries and Switzerland were most export markets. The USA, Canada and the Middle East countries constituted only 2 percent of the respective export markets.

The global market of the organic products was estimated at approximately US \$100 billion 2018-2019. Whereas, 39 percent of that market belonged to the USA, 12 percent were constituted by Germany, 10 percent by Switzerland, Austria 9 percent and the PRC amounted for 8 percent, respectively. Predominantly, price tags for environmentally friendly (green) products are as much as two or three times as expensive as they are for the common foods and products. Berry cultivation is one of the most prospective niches of the organic production in Ukraine. In average, the total production of berries has been growing by 4 percent in Ukraine annually. The annual global market of berries’ consumption has been growing by 3 percent, in average.

#### **Market’s conjecture: production and sale of organic raspberry in Ukraine and abroad**

Currently, in Ukraine, 90 percent of farms, which deal with organic berry cultivation, have an average area of 10 hectares. In Ukraine, the largest organic plantation for growing berries reaches about 85 hectares of square. The total surface cultivated with raspberry in Ukraine amounts for 6 thousand hectares. It is worth highlighting that the frozen raspberries export volume has been steeply growing in recent years, as actually, in 2017 it yielded to 8 thousand tons and in 2019 it amounted to 12 thousand tons, and in 2020 it has reached 21 thousand tons. The main markets for its exports were Poland, Germany and Czechia. It is worth saying that the organic raspberry cultivation in Ukraine is considered to be relatively the most profitable if to compare it with strawberry and current, which are considerably less profitable. There are 51 farming businesses, which are cultivating organic raspberry in our country and generally possess the total area of 280 hectares of land, which yield 2,240-2,800 tons

of the organic raspberry. Thus, the average productivity of the organic raspberry in Ukraine constitutes 8-10 tons per hectare, or when planting 6-7 thousand of seedlings per hectare, then one seedling can yield from 1.2-1.3 to 1.6-1.7 kilograms of the organic raspberry. In Ukraine, the agrarian experts suppose that the organic raspberry productivity, which, as the experts underline is usually one and a half or two times lower than the common one, in favorable conditions, can vary from 6 to 12 tons per hectare.

The organic raspberry is the most commonly planted organic berry, which is being cultivated by organic farms in Ukraine, nowadays. For comparison, organic strawberry and garden strawberry are being cultivated by 19 farms, using 25 hectares of land and collecting 200-250 tons, correspondingly, blueberry is being planted by 10 farmlands with 25 hectares, blackberry is being planted by 6 farms with 15 hectares, current is being produced by 6 farms with 5 hectares, collecting 50-60 tons of berries, consequently [7].

Based on their financial calculations, some Ukrainian consulting companies have made conclusions that expenses for buying seedlings take the largest part, about 45 percent, within the structure of capital investments for planting organic berries. Whereas, 19 percent, more than twice less, are spent for buying technical equipment, while constructing works require approximately the same expenses, specifically, 18 percent, and refinancing money flow for doing business takes 14 percent.

From year to year, the prices for the organic raspberry fluctuate, however, mostly the price tag for purchasing this organic berry is two, or sometimes, three times higher than the prices for the common raspberry. Wholesale prices for the common raspberry in 2019-2020 were changing within the range from ₴35 to ₴45 UAH per 1 kilogram. In retail, raspberry was traded at prices above ₴20 UAH on the food (open) markets and from ₴40 to ₴70 UAH at supermarkets, depending on the class and the sort of the product. In Poland, the retail prices for raspberry amounted to 140-150 in hryvnia equivalent and they even reached 260-270 in

UAH equivalent in network stores. In Ukraine, purchase prices for the organic raspberry may comprise to €2-2.5 euros per kilogram, which is equal to ₴65-80 UAH per kilogram, in conditions favorable to the producers and provided there is no overproduction on the market.

According to the experts' evaluations, the pace of the national organic production growth is 5.5 times higher than the corresponding paces in the European countries and in 4.9 times as high in dynamics as they are worldwide.

If to compare the scales of the organic agricultural products manufacturing development in different Ukrainian regions, it could be assumed that the L'viv region is one of the leading among others in this branch. In spite of that, the most organic farmlands are located on the territories of Kyiv, Odesa, Kharkiv, Kherson, Kropyvnyts'kyi, Chernihiv, Zhytomyr and Khmelnytsky regions. Consequently, convenient transport location and recent inflow of capital into the regional economy, especially into its agricultural business, are not bad prerequisites for the organic products cultivation, including raspberry, on the farmlands of the L'viv region [2].

## CONCLUSIONS

Thus, assuming the outcomes of the research, it is worth highlighting that Ukraine has credible prospects for gaining leading positions on global market of the organic production. In particular, it relates to the organic raspberry cultivation, however, for doing business effectively in this direction, it is necessary to take into consideration that berry products have short expiration time and are very demanding to the storage and transportation conditions, so when dealing with it the main risk lies in considerable losses of the processed goods. Apart from that, it is worth noting that there is also a risk of sharp price volatility for the berry products, as on the national and on the foreign markets, as well. In general, organic raspberry cultivation is a risky business from the point

of view of the natural and climate phenomena, manufacturing and market factors [1; 4; 6].

The negative impact of natural phenomena can be counted as the natural and climate risk for the organic raspberry cultivation. In particular, this factor is strengthened because the organic raspberry cultivation does not entail the use of any additional chemical means for protection. Eventually, there is growing a risk of harming the seedlings and already formed berries by the fluctuations of temperature, precipitations, diseases and pests.

To the manufacturing risks, we encompass a probable low yield of the organic raspberry because mineral fertilizers and growth stimulators are not used in the organic products cultivation.

To the market risks of the organic raspberry production, we include the fact that the organic berry products manufacturing structure is constituted by raspberry per more than 50 percent and its share is constantly growing. This culture overproduction can eventually cause decline in the average level of its market prices, what can be a hindrance for getting revenues necessary for profit.

The complex strategy of the organic market development in Ukraine, for the sake of minimizing the mentioned risks, could serve as a subject for further scientific researches.

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