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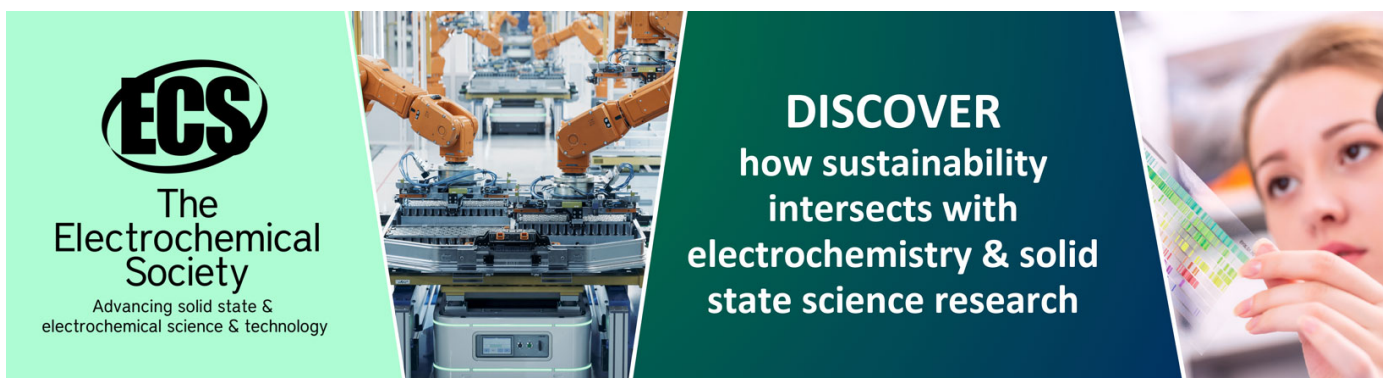
The state of the open ground vegetable growing

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The state of the open ground vegetable growing

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Abstract. The article discusses the development of open field vegetable growing and features of the existing state support for the industry. In particular, the authors analyze the data on the acreage vegetable crops of the All-Russian Agricultural Census for 2016 and systemic changes over 10 years. For agricultural organizations producing vegetables, the break-even volume of production is calculated. It was concluded that mainly small-scale production of vegetables in household farms restrains innovative development of the industry.

1. Introduction

In the world of vegetable growing is at high rates. According to the latest FAO data, the gross harvest of vegetables in the world reached 1.09 billion tons mainly due to the leading countries (China, India, Iran, Egypt, Turkey, etc.), and the area under vegetables increased to 57 million hectares. Per capita consumption of vegetables in the world is constantly increasing, and it reached 128.4 kg in 2012. The leading countries of the world have significantly increased the consumption of vegetables per person in one year: 315 kg in China, 240 kg in Turkey, 220 kg in the Republic of Korea, 142 kg in the USA.

The World Health Organization recommends a standard consumption of vegetables at the level of 600 g / day or 219 kg / year for 1 person. The Russian standard consumption is 400 g / day for 1 person. The growing importance of vegetables in the diet and medical nutrition contributes to the development of organic production of vegetables.

Russia is among the ten leading countries in the world in the production of vegetables. Its share in the world production of vegetables is 1.5%, but it is on the 57th place in terms of yields.

In a Message to the Federal Assembly on March 1, 2018, President V.V. Putin pointed to the need to increase the country's self-sufficiency in a number of foods, including vegetables. Therefore, the study of problems and prospects of development of the vegetable industry is an urgent task.

2. Research Methods

In conducting the study, the economic-statistical and design-constructive methods were used, as well as a graphical presentation of the results. As the initial data, the data of the All-Russian Agricultural Census of 2006 and 2016, the financial statements of agricultural organizations were used.

3. Research Results



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The main production of vegetables in open ground is concentrated in household farms - up to 70% of the total gross collection. The official data of the All-Russian Agricultural Census of 2016 show that the area under open-ground vegetables in all categories of farms has declined, especially in households and peasant farms (Figure 1). By types of crops significantly reduced the production of cabbage and onion.

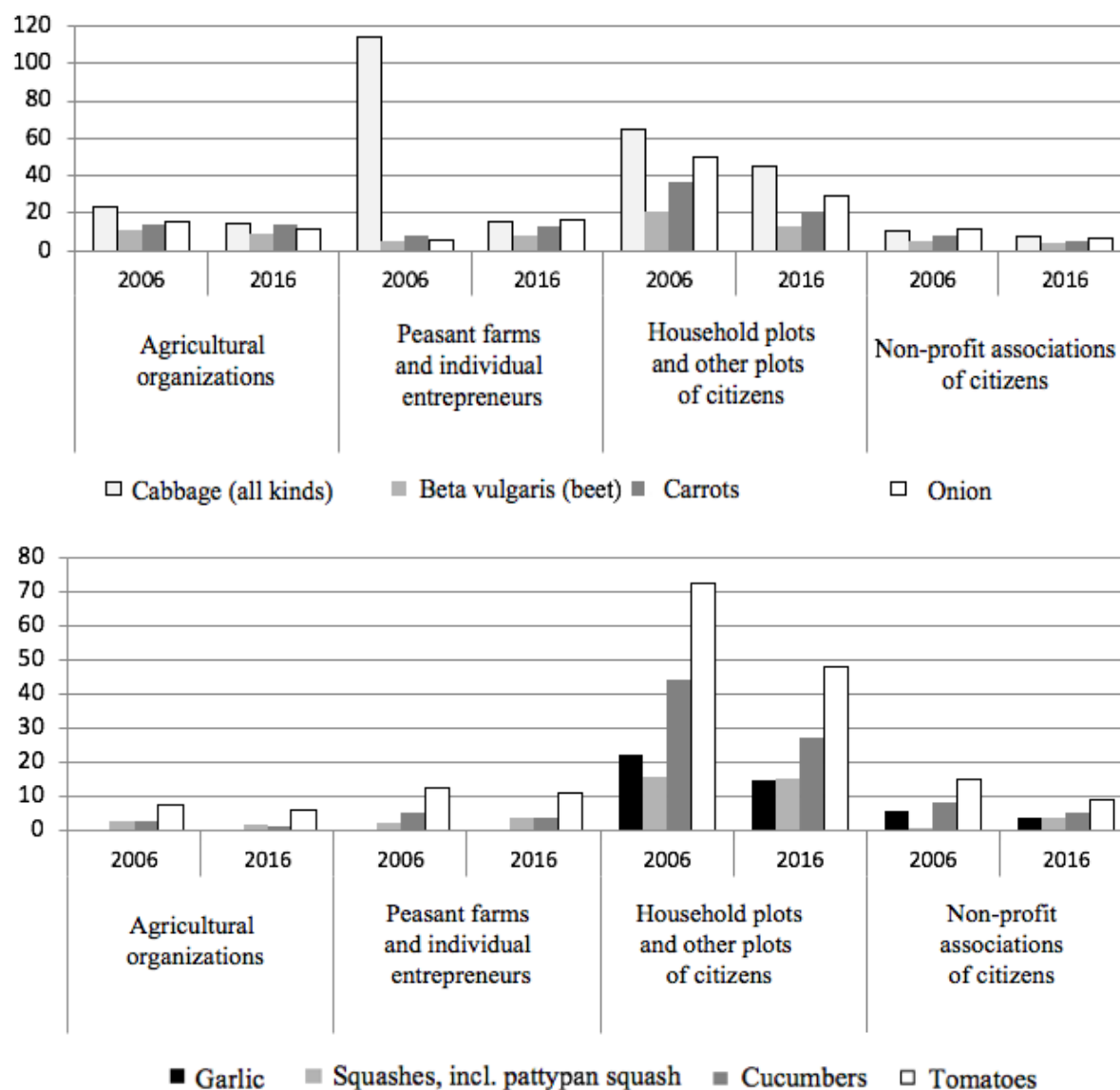


Figure 1. Sown area under vegetables of open ground by categories of farms according to the All-Russian Agricultural Census 2006 and 2016.

The production of vegetables is dominated by small forms of management. As these tables show, small private households produce vegetables for personal consumption. And only with areas from 1 to 5 hectares and more than 5 hectares, the sown areas under vegetables increase significantly – by 2.8 and 22.9 times. The small-scale production restrains the innovative development of the industry, as its possibilities in mechanization of vegetable production, application of industrial technologies, and investments are limited.

Table 1. Grouping of personal subsidiary and other individual farms of citizens according to the size of the sown area of vegetables for the 2016 harvest.

Facilities that had a cultivated area, hectares:	Before 0,03	0,03- 0,05	0,06- 0,08	0,09- 0,12	0,13- 0,15	0,16- 0,20	0,21- 0,30	0,31- 0,50	0,51- 1,00	1,01- 5,00	Over 5.0
Sown area of vegetables on average per household, ha	0,007	0,031	0,064	0,103	0,136	0,178	0,245	0,402	0,694	1,964	15,955

The reduction in the production of vegetables in personal subsidiary farms was offset by the import of vegetable products. In 2017, 1,369 thousand tons of vegetables for 63 billion rubles were delivered to the country: tomatoes (518 thousand tons), onion (314 tons), garlic (53 thousand), cabbage (150 thousand), carrots (186 thousand), beets (110 thousand). At the same time, onions and carrots were imported, which overproduction in the country.

Among the regions, the Krasnodar territory takes the first place with 92 thousand tons of vegetable production by the end of 2017. The growth of vegetable production is ensured by increasing the yield of vegetable crops, the transition to industrial technologies. There is a problem of storage. The shortage of storage capacities is 5.5 million tons, which forces agricultural producers to sell vegetable products immediately during the harvest at the lowest prices.

According to agricultural organizations, we plotted a break-even curve for open-field vegetables, according to the Federal Statistics Service and the Ministry of Agriculture (Figure 2).

The revenue curve is described by an exponential curve $y = 124,7e^{0,064x}$ with high confidence $R^2=0,844$, the cost curve is described by the equation $y = 110,8e^{0,061x}$ with confidence $R^2=0,794$.

The State program provides for unrelated support for agricultural producers in the development of production of seeds of vegetable crops of open ground, seeds of sugar beet and vegetables of open ground for reimbursement of part of the costs of carrying out a complex of agrotechnological works, ensuring an increase in the production of seeds of vegetable crops of open ground, sugar beet seeds, and vegetables open ground per 1 hectare of sown area.

Support is provided in the form of subsidies from the federal budget to the budgets of the constituent entities of the Russian Federation for the provision of unrelated support to agricultural producers, with the exception of citizens who are engaged in a personal subsidiary farm, including in the field of open-field vegetable production. In 2018, the amount of subsidies in the framework of unrelated support for the production of vegetables was about 3% of the total costs (on average in the Russian Federation, it was 5 700 rubles per 1 ha).

In 2018, in accordance with the Order of the Ministry of Agriculture of January 24, 2018 N 26 "On Approval of Documents and Ratios Stipulated by the Rules for the Provision and Distribution of Subsidies from the Federal Budget to the Budgets of the Subjects of the Russian Federation for Providing Unbound Support to Agricultural Producers in the Field of Crop Production" for the production of seed crops of vegetables in open ground (per 1 hectare): cabbage F1 – 38 900 rubles / ha; cabbage (variety) – 35,200 rubles / ha; carrots table – 49 500 rubles / ha; beetroot – 48,000 rubles / ha; garlic (bulbs) - 3,400 rubles / ha; onion sets - 55,000 rubles / ha; onion chernushka – 70 500 rub./ha; tomato – 82,600 rubles / ha; cucumber – 66,600 rubles / ha; vegetable peas – 16 700 rubles / ha.

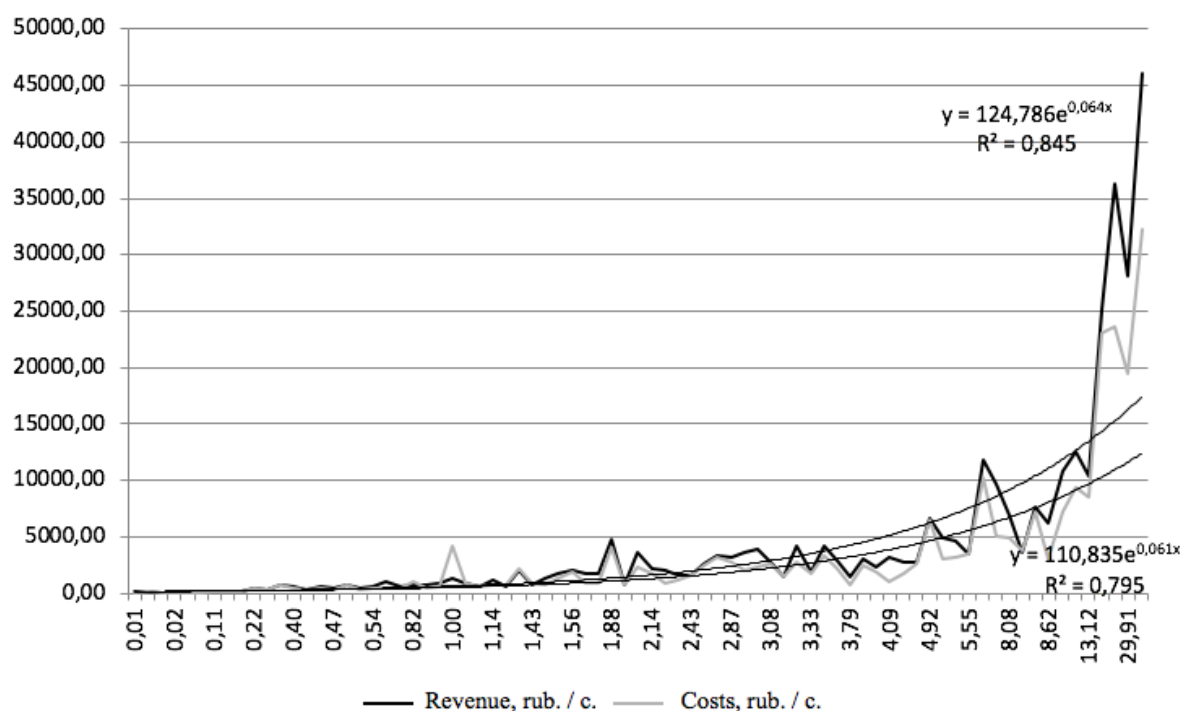


Figure 2. Break-even production of vegetables according to agricultural organizations for 2016.

The level of profitability achieved by vegetable producers without subsidies does not allow for expanded production, so the role of state support for the industry is increasing.

4. Conclusions

The need to increase the production of vegetables is due to the growing demand for vegetable products, its importance in the diet of the population. The main problems in vegetable production are: seed farming of vegetable crops, a lack of storage capacity, mainly small-scale production.

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