

Potatoes – an important food for people

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Problems in their production

Potatoes are one of the most widespread agricultural crops. In terms of production volume, they rank fourth in the world (after rice, wheat and maize). This is partly due to the significant water content of the tubers. They are distinguished by high biological value. In terms of the quantity of nutrients obtained per unit area, they occupy one of the leading positions among cultivated plants. Their tubers contain starch, proteins, vitamins and mineral salts. Potato carbohydrates are among the main sources of muscular energy for humans, and the mineral salts contain calcium, iron, iodine, sulfur and others. Potato proteins contain amino acids that are absorbed by the human body more easily and more completely compared to proteins from meat. They originate from the South

American Andes. At present, potatoes are grown in 160 countries worldwide. There are 1,500–2,000 different varieties, which vary in colour, size and nutrient content.

The wide use of potatoes as food, feed and raw material for industry determines their important economic significance. In 100 g of baked potatoes with skin there are 97 calories, 0 fat, 21 g carbohydrates, almost 3 g protein, vitamin C – 37% of the reference daily intake, vitamin B₆ – 31% of the same, as well as sodium, potassium and manganese. The nutrient profile of potatoes may vary depending on the type. They are a good source of antioxidants, including specific types such as flavonoids, carotenoids and phenolic acids, which reduce the risk of chronic diseases. Potatoes are a good source of resistant starch, and those that are boiled and then cooled contain the largest amounts of it. It is beneficial to health, particularly with regard to blood sugar control and insulin sensitivity. Resistant starch is associated with several other advantages, including reduced food intake, increased nutrient absorption and improved digestive health.

Potatoes contain glycoalkaloids, which can be toxic if consumed in large quantities. Storing the tubers at lower temperatures and away from sunlight can keep the level of glycoalkaloids low. When consumed in moderation and prepared in a healthy way, potatoes can be a nutritious addition to the human diet.

Potatoes are a staple food in many regions of the world. Today they are one of the most widely cultivated crops and are used in many directions, including for the production of alcohol, animal feed, dehydrated food products (mashed potatoes), frozen food products (frozen French fries). The leaders in potato production are China and India.

According to FAO data, total global potato production in the last recorded year 2017 is 388,190,674 t, with 25.6% of the global supply coming from China, and the top 5 producing countries together accounting for 56.6% of this production.

The demand for potatoes in China is constantly increasing, as this production is more profitable per decare than other main crops such as cereals, beans and cotton. Only 10–15% of total production is used for processed potato products such as crisps and frozen French fries. Farmers there face serious problems, including a lack of coordination among producers and a shortage of high-quality, virus-free seed. Per capita potato consumption has increased to 25.53 kilograms per year in India, compared to 12 kilograms in 1990. India relies mainly on small, family farms in the western region of the country to grow its potatoes.

Potatoes have been a main element in the Ukrainian diet since the beginning of the 20th century. Today per capita consumption is 131.26 kilograms per year and is among the highest in the world.

The Netherlands has the highest potato yields. It is also the number 1 producer in the world of high-quality seed potatoes. Until recently, this country was also the largest European exporter of potatoes.

In our country potato production over the last 10 years has decreased 4 times, and the areas occupied by this crop – 3 times. According to Agrostistics, in 2018 potatoes were grown on 140,960 decares. With an average yield of 1,856 kg/da, 261,594 t of production were obtained. This is 15% more compared to 2017. Potatoes imported in the same year are 16% less than in 2017, while the quantity exported is 3.3 thousand tonnes more. Imports are mainly of German origin. The reason is the lower production cost of the output there. The difference in cost price is determined by many factors – climatic characteristics, irrigation, farm structure, quality of planting material and varietal structure, low yields and others.

There are several reasons for this – a mismatch between the biological requirements of the crop and the soil and climatic conditions in the predominant part of the areas, non-compliance with key elements of the cultivation technology, use of low-quality planting material and, not least, the high viral infection background in the country. Due to fragmentation and difficult-to-access terrains, modern machinery for soil cultivation, planting and harvesting can be used only to a limited extent. As a result, the degree of mechanization in this production is lower. Average annual yields are about 1–1.8 t/da and place our country 107th in the world in terms of productivity.

The prevailing opinion is that the difference in the cost price of Bulgarian potatoes and those produced in Germany is due to the different subsidies received by producers. There are indeed fundamental differences in the determination of subsidies in the two countries, but this is hardly the main reason. For example, only 7–10% of the planting material in Bulgaria is imported. The varietal structure is very heterogeneous, which does not allow for the preparation of larger homogeneous batches for processing, for the domestic market and, accordingly, for export. Despite the opening of specialised credit lines for potato producers, interest rates on them are still high. This also contributes to the non-competitiveness of domestic production.