Sweet cherry (lat. Prúnus avium)

Eliseeva Tatyana, editor-in-chief of the EdaPlus.info project

Yampolsky Alexey, nutritionist

Email: eliseeva.t@edaplus.info, yampolsky.a@edaplus.info

Abstract. The article discusses the main properties of sweet cherries and its effect on the human body. A systematic review of modern specialized literature and relevant scientific data was carried out. The chemical composition and nutritional value of berries are indicated, the use of sweet cherries in various types of medicine and the effectiveness of its use in various diseases are considered. Potentially adverse effects of cherries on the human body under certain medical conditions and diseases are analyzed separately. The scientific foundations of diets with its application are considered.

Keywords: cherry, useful properties, potentially dangerous effects, side effects, contraindications, diets

Beneficial features

Table 1. Chemical composition of lemon (according to Food+).

100 g of fresh cherries contain [1]:					
Main substances:	G	**Minerals:**	mg	**Vitamins:**	mg
Water	82.25	Potassium	222	Vitamin C	7
Carbohydrates	16.01	Phosphorus	21	Vitamin PP	0.154
Sugar	12.82	Calcium	13	Vitamin B6	0.049
Alimentary fiber	2.1	Magnesium	eleven	Vitamin B2	0.033
Squirrels	1.06	Iron	0.36	Vitamin B1	0.027
Fats	0.20	Zinc	0.07	Vitamin A	0.019
calories	63kcal	Sodium	0	Vitamin E	0.07

The pulp of cherry fruits contains about 10% sugars, fiber, hemicellulose, various organic acids, pectins, vitamins of groups B, PP, C, biotin, iron salts, flavonoid glycosides, essential oils, coumarins, amygdalin . Depending on the cherry variety and the conditions of its ripening, the chemical composition of the product varies, but any dark red fruit contains a number of anthocyanins among

flavonoids (cyanidin 3-rutinoside, cyanidin 3-glucoside, pelargonidin 3-rutinoside, peonidin 3-rutinoside), and also hydroxycinnamic acids and derivatives.

Cherry leaves have a comparatively high amount of vitamin C. Seeds contain fatty oil and amygdalin . But in general, cherries are not the champion in vitamin content. It is valuable as a storehouse of antioxidants. Moreover, unlike cherries, which have a little more anthocyanins, cherries are rich in polyphenols, thanks to which cells receive protection from oxidation and damage.

Medicinal properties

Relatively recently, in the first decade of the 21st century, scientists paid special attention to the flavonoid substances contained in sweet cherries - anthocyanins. These are plant glycosides, which in plants are "responsible" for the red, purple, blue colors of fruits or leaves. The closer the color of the product to this spectrum, the more anthocyanins it contains. And since so many varieties of sweet cherries have just a burgundy and thick red color, the “bird cherry” has become the focus of attention of scientists.

Physicians are interested in anthocyanins, because with the help of this substance the plants themselves are protected from ultraviolet radiation, and in relation to people, the properties of anthocyanins can be used in the fight against oncological formations. During its growth, the cancer cell requires intensive nutrition, which provokes an increase in the number of blood vessels and capillaries. Anthocyanins, on the other hand, are able to block nutrient channels, limiting the flow of resources to the cancer cell, as a result of which it dies “from hunger”.

Also, fresh cherries contain a lot of potassium, which helps to strengthen the heart muscle and normalize the pulse. Cherry biologically active substances (for example, organic compounds such as coumarins) can prevent blood clotting, so regular use of "bird cherries" reduces the risk of blood clots, being the prevention of heart attacks and strokes.

Cherry fruits have a weak diuretic effect, as well as the ability to reduce the concentration of uric acid in the blood plasma, which is used to relieve attacks in patients with gout. However, it is more effective to use fruit extracts for this, and not just eat “berries”.

Some studies indicate the ability of cherry fruits to lower blood pressure. However, it is important to correctly establish the mode of use of the product and its quantity. So, studies have found that significantly upper and lower blood pressure indicators decreased within two hours after drinking a large glass (300 ml) of cherry juice. The effect lasted about 6 hours. At the same time, the division of the same volume into three parts with its hourly use did not have a similar effect on pressure indicators.

In achieving a therapeutic effect, the age of patients with hypertension and the duration of "cherry therapy" also mattered. So, in elderly people who drank a standard glass (200 ml) of freshly squeezed cherry juice daily for 6 or 12 weeks, there was a decrease in mean systolic blood pressure. The diastolic pressure remained unchanged.

Recently, the radioprotective properties of cherry juice have also been determined [6] . This means that the systematic use of this drink is potentially able to protect the body from radiation by preventing the effects of radioactive isotopes on the organs. However, this property is still in the initial stage of study.

Among the general confirmed effects produced by the use of sweet cherries, we can name the harmonization of sleep, stress relief, improved mood of the subjects, increased ability to memorize and perceive new material.

Use in medicine

Despite the numerous medicinal properties of cherries, it is used as a raw material mainly in dietary supplements and sports nutrition. So, a number of Western companies offer cherry extracts in capsules without indicating the recommended daily intake. Easily available on the market are Enzymatic brands Therapy , Puritan's Pride .

The use of sweet cherries in modern folk medicine is based on supposed expectorant, antipyretic, and tonic effects. Traditional healers are also known for the sedative (sedative and hypnotic) effect produced by water infusions of cherry fruits. There are recipes for the use of cherry juice to combat fungal infections, the effectiveness of which is confirmed by medical research.

But traditional healers use not only berries. For example, tea from the flowers of "bird cherry", as well as a decoction of its branches, is actively used as a remedy for diseases of the oral mucosa and gums, as well as a sedative for burns. A decoction of sweet cherry stalks has a pronounced diuretic effect. However, although experimental testing confirmed this effect, the risks of using this decoction for urolithiasis were also identified. The danger is associated with a strong leaching (excretion) of calcium salts when using doses recommended by healers.

Decoctions

Below are the recipes for the two decoctions of stalks and branches mentioned above:

- To prepare a decoction of the stalks, 1 liter of water is brought to a boil, after which a large handful of well-washed cherry “tails” is lowered into it. For 5 minutes, the stalks are boiled over low heat and left for half an hour in a saucepan to cool. This amount of broth is enough for two days.
- In a decoction of branches, young shoots of sweet cherries are collected, thoroughly washed and crushed, and then boiled over low heat for 2-3 hours. With a cooled filtered liquid, you need to rinse your mouth two or three times a day to stop inflammation.

in oriental medicine

In Chinese traditional medicine, it is customary to divide all foodstuffs according to the criterion of the presence / absence of two opposing principles, Yang and Yin. For gradation and convenience of stabilizing the balance of these principles in the body, a scale is introduced with divisions from “-3” (for foodstuffs with the maximum concentration of Yin energy) to “+3” (with the maximum concentration of Yang energy). Cherry is on the +1 position on this scale, moderately and gently increasing activity and mobility, stimulating progressive movement, strengthening hardness and strength. At the same time, products with moderate values close to zero (“-1” and “+1”) are considered more preferable, in contrast to products located at the edges of the scale, which are recommended to be used with great care.

A completely different approach to the use of cherries and sweet cherries was professed in the ancient Persian tradition. It was a mixture of folk beliefs and experimental medicine, in which the nature of the cherry was defined as "hot in the 1st degree and wet" (for comparison, the nature of the cherry was considered "cold in the 2nd degree and wet") [7] . With the help of cherries, the ancient Persians got rid of thirst, nausea, bilious vomiting, and high blood pressure. It was believed that cherry seed juice, to which anise seeds are added, helps to remove stones, cure diseases of the bladder, and facilitate the flow of menstruation.

Cherry gum dissolved in wine, according to the plan of Persian doctors, was also supposed to fight stones in the bladder, as well as get rid of lung ulcers, hemoptysis, suffocation and cough caused by it [8].

Some of the treatments were extreme. So, for example, one of the ancient treatises on Middle Eastern medicine offered a recipe for treating urinary canal ulcers and getting rid of pus. It recommended crushing the kernels of the fetal bones and introducing the mixture along with the wick into the opening of the penis. This procedure was painful, but patients agreed to such radical measures, tired of constant torment and under the influence of the authority of doctors.

The Persian medieval medical school, whose central representative was the famous Avicenna, was indeed very revered and progressive for its time. It is not surprising that from the XII-XIII centuries it became widespread in the West. The author of the Salerno Code of Health, Arnold of Villanova , who studied the works of the great Persian healer at the Faculty of Medicine in Montpellier , gives his assessment of the healing effect of "bird cherries":

“If you eat cherries, you will receive considerable benefits:

They cleanse the stomach, and the core - relieves stones;

You will have good blood from the pulp of the berries.

I must say that due to the external similarity of cherries and sweet cherries, the ancient healers did not always distinguish them. Often, only by indirect signs, if any were given (taste characteristics, pulp density, color of berries, etc.), it could be assumed that the recipes were talking about sweet cherries. Until now, in some modern Western scientific studies, such a distinction is not indicated, and then we have to talk about the overall effect of the use of these drupes or experimental preparations based on them.

In scientific research

In the spring of 2018, the scientific journal Nutrients , which publishes research and reviews on all aspects of nutrition, published a review of the results of 29 controlled scientific experiments conducted on volunteers who used either cherries and cherries, or juices from them, or preparations based on them in various programs. The bulk of the materials (20 works) were devoted to the "more promising" cherry. In 2 studies, cherries and sour cherries did not differ. In 7 experiments, scientists worked exclusively with cherries, the "daily dose" of which varied between 45-270 "berries". (When studying the effect of preparations and extracts, the daily dose of biologically active substances was recalculated by the number of fruits containing them).

Not all experiments unambiguously confirmed (or refuted) the studied effect, but, in general, they were able to demonstrate the potential of these “drupes”. In summary, the results looked like this:

- In 100% of experiments, the use of "berries" and drugs reduced the concentration of uric acid, which reduced the frequency of gout attacks, improved the condition of patients with osteoarthritis.
- In 80% of cases, based on the reaction of special markers, scientists recorded a weakening of the oxidative process, which gave reason to talk about the direct antioxidant effect of sweet cherries.
- 71% of the results confirmed the ability of sweet cherries to lower blood pressure.
- In 69% of studies, an anti-inflammatory effect was found that improves the condition of blood vessels.

Thus, in the fight against arthritis, the action of cherry anthocyanins contributed to a decrease in the concentration of uric acid in plasma and facilitated attacks in patients. Experiments on mice and rats also confirmed this. At the same time, it was found that it is more effective to use extracted anthocyanins or cherry extract, and not just eat the fruits, to get the result [9].

The anti-inflammatory effect was confirmed by an experiment in which healthy men and women consumed 280 g of cherries daily for 28 days. The researchers took blood from them and tested it for the presence of inflammatory markers (for example, C-reactive protein, whose concentration in blood plasma increases with inflammatory processes in the body). In the middle of the experiment and at its end, it was found that the concentration of most markers decreased [10].

Polyphenols, melatonin, carotenoids , and vitamins E and C give cherries antioxidant and anti-inflammatory properties. Therefore, its use helps to reduce the level of oxidative stress in the body [11].

To determine the effect of sweet cherries on human pressure, the Bing cherry variety, popular in the United States, was chosen. The scientists found that the upper and lower blood pressure significantly decreased within 2 hours after a single consumption of 300 ml of fresh cherry juice and returned to normal within 6 hours. However, if a person drank 100 ml of juice every hour, then this did not have any effect - neither the upper nor the lower pressure decreased. From this, the scientists concluded that both the dose and digestion time are important for lowering blood pressure [12].

In another study, 200 ml of freshly squeezed cherry juice per day (or 138 mg of anthocyanins per day) reduced mean systolic (upper) but not diastolic (lower) blood pressure in older people after 6 and 12 weeks of daily use. A control comparison was made with a group that received placebo for 12 weeks [13]. The effect is associated with the influence of sweet cherries on the reduction of the endothelin-1 peptide in the body, which causes vasoconstriction and impairs blood flow.

According to various studies, eating cherries does not have a significant effect on the level of sugar and insulin in the body of a healthy person. But drinking cherry extract before contracting diabetes helped prevent its development in rats [14]. Also, thanks to anthocyanins, hydroxycinnamic acids and flavonols , glucose uptake by hepatocytes (liver cells) is stimulated. In addition, anthocyanins slow down the release of glucose from complex carbohydrates and stimulate the production of insulin by beta cells [15]. In general, scientists believe that cherries contribute to the regulation of blood glucose levels, but it is not yet clear how much they can actually prevent the development of diabetes in humans.

In mice, adding cherry extract or pure anthocyanins to a high-fat diet reduced blood glucose and triglycerides (unhealthy fats) in mice (compared to rodents not fed cherries) [16].

Dietary pntocyanins from sweet cherries also improved lipid metabolism in the liver in mice [17], attenuating diet-induced hepatic steatosis (fatty infiltration of the liver), which in humans is considered the most common hepatosis characterized by abnormal accumulation of fat in cells.

In addition to the therapeutic effect, scientists also studied the effect of sweet cherries on the state of the nervous system, the quality of sleep and human cognitive abilities.

So it turned out that sweet cherries even better than cherries affect the quality and duration of sleep. The results become noticeable after 3 days after daily consumption of 140-145 g (or 25 berries) of sweet cherries. There is also a decrease in the level of cortisol (stress hormone) in the urine, a decrease in anxiety and an improvement in mood [18].

The influence of sweet cherries on cognitive abilities was determined in an experiment with grown neuronal cells. Scientists have found that the polyphenols contained in the "berry" help cells protect themselves from damage caused by increased oxidative stress [19] . Animal experiments have also demonstrated the positive effects of anthocyanins on memory.

Weight regulation

"Cherry weight loss" is considered one of the most pleasant and easily tolerated among all "berry diets". 100 grams of the product contains only about 50-60 kilocalories, but at the same time, cherries give a person a feeling of satiety, which greatly simplifies control over the process.

With the use of cherries, express diets and fasting days are the most popular. They will not provide stable long-term weight loss, but they will help to temporarily get in shape.

- Fasting day.

For a day, you need up to 2 kg of sweet cherries and 1 liter of kefir or low-fat drinking yogurt. The entire volume of products is divided into 5 servings and eaten (drinking) during the day. If in the intervals between meals there is a feeling of hunger, it is recommended to muffle it with plain water or herbal teas. The amount of water drunk while drinking is not limited. Sometimes the "unloading day" can be stretched for 3 days. It is believed that with this diet you can lose up to 4 kg.

- 7 day express diet.

A week on one sweet cherry without side effects will not survive even the most hardy. Therefore, seven-day weight loss involves only adding cherries as an additional ingredient to each meal.

- *Breakfast:* Oatmeal or cottage cheese (150 g) and cherries.
- *Lunch:* Boiled and lean meat (100 g) and cherries.
- *Snack:* herbal tea and cherries.
- *Dinner:* Baked fish (100 g) and vegetable salad (150 g).

Since the vitamin C contained in the "bird cherry" helps to absorb the iron contained in other foods, the cherry is recommended for people at risk of developing anemia who are going to lose a few extra pounds with the help of diets for the holidays.

In cooking

Cherry goes well with many traditional products for our table. Its fruits are often added to cereals, meat and fish are seasoned with cherry sauces, it is constantly present as a filling in pastries and cottage cheese casseroles. There are, however, rarer ways to cook "bird cherries". Among them is cherry soup. Here is his recipe.

For the dish you will need:

- Sweet cherry - 500 g.
- White wine - 2 glasses.
- Water - 2 glasses.
- Cream - 1 glass.
- Lemon - 1 pc.
- Sugar and cinnamon to taste.

To make soup you need:

1. 1 Wash the cherry fruits and remove the seeds from them.
2. 2 Remove the zest from the lemon and squeeze the juice into a common saucepan.
3. 3 Mix wine, water, juice and lemon zest in a saucepan, add sugar, cinnamon stick and, bringing it all to a boil, simmer for a few minutes.
4. 4 Add the cherries and bring the mixture back to a boil.
5. 5 Remove the cinnamon stick and let the soup cool.
6. 6 Mix the soup with the cream and beat until smooth.

Such a finished dish is sent for 2 hours in the refrigerator, after which it is served chilled.

In cosmetology

As a source of zinc and copper, necessary for the production of collagen responsible for skin elasticity, cherry extracts are included in various skin masks. As a rule, other components are included in the composition of such a cosmetic product, as a result of which natural masks with a cherry component in the base can perform different functions:

- smooth wrinkles on the face (for example, Vilenta sheet mask with cherry extract);
- cleanse and moisturize (for example, the Japanese mask Japan Gals natural fruit mask);
- nourish and protect (for example, a hand mask with cherry extract and vitamins from the German brand LCN);
- have an anti-inflammatory effect, protecting against acne, blackheads and blackheads (for example, Luchix Shark Retinol face mask with Roman chamomile and cherries).

Cherry seed oil can be found in natural lipstick base formulations. The antifungal effect of the juice is used in home remedies to treat affected nails. Shampoos based on cherry extract are advertised as products that can, due to the action of B vitamins, give hair a lively shine and density.

Dangerous properties of cherries and contraindications

From the use of fresh cherries, gastroenterologists warn people suffering from adhesive bowel disease and other patency disorders, as well as people prone to flatulence. Also, with great care and in small portions, you should try cherries for patients with ulcers and gastritis with high acidity. In addition, the sugar content of cherries makes it a "difficult" product for diabetics.

However, doctors warn that even healthy people should not abuse cherries and lean on them soon after a hearty meal. Vegetable fiber, which is found in abundance in fruits, can lead to distension of the intestines and discomfort in the stomach. If you want to eat more, it is advisable to wait about 0.5-1 hour - this will help to avoid indigestion.

Selection and storage of cherries

A competent approach to the choice of cherries requires attention both to the fruits themselves and to those who sell them. Therefore, cherries are advised to be purchased where they pass safety and quality control. Even for the loose “berries” purchased on the market, upon request, documents confirming the passage of the test must be provided. You can find out about the place and conditions for the growth of fruits from the seller or, if the cherry is sold packaged, on the label.

Minor defects (dents and cuts), which buyers often do not pay attention to, lead to rapid deterioration of the fruit and the appearance of a characteristic putrid aroma of fermentation. A similar smell is one of the main indicators of the condition of the fruit.

Since sweet cherries often begin to deteriorate from the stone, the onset of decay processes can also be recognized by the state of the stalk (vegetable “tail”). Fresh cherries are green and not dried out. A dry and darkened stalk indicates that the berries have been stored for a long time and there is a higher chance that they have begun to deteriorate.

Experts advise not to rush and buy cherries at the height of the season, which lasts 1-1.5 months - from late May to early July. During this period, the fruits are both tastier and healthier. At the same time, the color of a ripe berry is more dependent on the variety and it is necessary to focus on it only after adjusting for varietal differences.

There are varieties of sweet cherries that have a pink color even during the period of maximum ripeness. Such fruits differ from dark ones in a less saturated sweet and sour taste, but they contain more vitamin C. Yellow varieties are also characterized by pronounced sourness. However, they are more difficult to transport (send) because, due to their thin skin, they require careful handling. If sweet, bright taste and a high content of organic acids are more attractive in cherries, then it is better to choose dark red, burgundy or almost black varieties. They are also recommended for use in canning.

Early varieties of cherries are poorly suited for storage, so they are best eaten immediately after purchase. But later varieties should be stored in the refrigerator, in a container with a lid. Moreover, before this, the berries should be washed, dried, the stalks should be separated and only then sent to the coldest place in the refrigerator.

There is another storage method that does not require the removal of “tails”, which is especially important for varieties where the peduncle is very tightly attached to the fruit and is separated only when it is damaged (for example, the variety “Valery Chkalov”). A layer of cherry leaves is placed on the bottom of a glass jar, berries are placed on top of them - also in one layer, and then several more layers of berries and leaves alternately. The jar is tightly closed with a ground-in lid and placed in the refrigerator. After such preparation, sweet cherries can be stored for up to 2 weeks without loss of taste and useful qualities.

Interesting Facts

Sweet cherry is a familiar tree for the inhabitants of Asia and the southern regions of Europe, and with the development of frost-resistant varieties, it has become not uncommon in more northern countries. However, some facts diverge from generally accepted ideas about this plant and its fruits.

- A cherry tree can reach a height of 25-30 meters, although plants not exceeding 5-10 meters are more common in gardens.
- Food coloring is made from cherries, however, contrary to expectations, it is not red, but green.
- "Bird cherry" this plant was called, apparently, for the love of birds for its fruits. Even city sparrows do not refuse the desire to peck ripe berries.
- One hectare of a blossoming cherry orchard provides "raw materials" for 35 kilograms of pollen collected by bees.
- It is incorrect to call cherries a "berry" in the classical sense of the term, since one of the botanical characteristics of berries is the presence of many seeds inside the fruit. Therefore, in a “serious conversation”, what is popularly called “berries” is more correctly called “stone fruits”.

- According to some psychologists, people who name cherries as their favorite delicacy have a soft, complaisant character, are characterized by sincerity and childish spontaneity, love small surprises and are ready for sacrificial behavior for the sake of another person.

There are still few monuments to cherries in the world, in comparison with monuments to other vegetables and fruits. One of the few is located in the city of Minneapolis (USA). Since 2012, they plan to install their monument in the Ukrainian "cherry capital" - the city of Melitopol. And before it came to the implementation of the projects presented, in the city, on one of the walls of a high-rise building, a 27-meter mural appeared with the image of a fruit-bearing branch of the “bird cherry”.

During the time of the tsarist empire, Melitopol sweet cherries were famous in France, where they were sent in barrels filled with special solutions. Until the middle of the 20th century, a store operated in Paris, which was called “Melitopol Cherry”. In addition to climatic conditions, the taste qualities and, as a result, the popularity of the Ukrainian product were provided by special Azov soils formed after the melting of an ancient glacier. Ideal cherry soils were formed due to the fact that 70-90 cm of easily warmed sand was applied over a one and a half meter layer of black soil.

The appearance of cherry gardens in southern Ukraine is associated with the names of the doctor Andriy Korvatsky and the landowner-philanthropist Louis Henri Philibert , one of whom was a distant relative of the Hungarian king, and the other was a descendant of the Huguenots who moved from France to the Netherlands.

Varieties and cultivation

The ripening time of cherry fruits depends on the variety. The earliest ones ripen in the second half of May, and the latest - by the end of June. Dozens of varieties of cherries are known, each of which is remarkable for something. But all of them, in addition to advantages, have their drawbacks.

- **"Valery Chkalov"** . Frost-resistant (a third of the buds survive at -24 °C) and a relatively early variety (ripens in the first decade of June) was the result of the joint work of specialists from the Melitopol Horticulture Experimental Station and the Michurinsk Central Genetic Laboratory. Fruits reach 6-8 grams, having a dark red, almost black color. Pinkish streaks are clearly visible in the pulp. This variety is distinguished by a bright taste and juiciness of sweet cherries, which are also suitable for canning. However, there are also disadvantages: the tree is often affected by gray rot, coccomycosis and other fungal diseases, which can completely destroy the crop.
- **"Regina"** . The variety was specially created by German breeders on the basis of other varieties " Roubet " and " Schneider " as a cherry with late fruiting, ripening by mid-summer. The pulp has a honey-sweet taste with a slight sourness. The fruits themselves are dense, tolerate transportation well. The key disadvantage is the need for the presence of pollinators of other varieties.
- **"Red Bittner "** . Also a German variety, which is already more than a dozen years old. In Poland, it "took root" so much that it received the local regional names "Napoleonic" and " Poznań ". The skin of the fruit is yellow, but well-lit cherries are covered with a brilliant blush. The pulp is light yellow in color, colorless juice is extracted from it. The disadvantages of growing include the danger of cracking the skin in rainy weather (which helps with spraying with calcium preparations), and the disadvantages of storage are sensitivity to pressure when full ripeness is reached. For the same reason, Red Bittner cherries are harvested for transportation a little earlier than ripening.
- **"Bull Heart".** The name of the variety speaks for itself: the fruits are large (7-10 g), flat-round in shape, vaguely resemble a heart. They have the highest tasting rating, and compotes from this sweet cherry are distinguished by a rich, beautiful dark red color. However, according to

the characteristics of keeping quality and transportability, this variety is inferior to many other varieties. At the same time, the tree has high winter hardiness and is immune to fungal diseases and, in particular, to coccomycosis .

- **"Yellow"** . Early sweet cherry with ripening in early June (even a little earlier than the variety "Valery Chkalov"), bred on Artyomovskaya OSS. The skin is thin, but dense. A unique taste is created by a combination of bitterness and sourness. The fruits reach a mass of 8-12 g and are widely used for jams and compotes.

The entry of a tree into fruiting, the strength of its growth, the quality and quantity of the fruits obtained depend mainly on the rootstock - a plant, to the root system (or stem) of which a cutting of a cultivated variety is grafted. Today, many vigorous and dwarf rootstocks are known, each of which has physiological compatibility with some sweet cherry varieties and incompatibility with others.

Due to the fact that sweet cherry belongs to very vigorous fruit trees, breeders for a long time could not find a way to effectively limit its growth. Only since the 60s of the XX century there has been a qualitative change in the selection of dwarf rootstocks, which, starting from the 70s, led to a breakthrough in horticulture when growing this crop. Nevertheless, even today, when choosing rootstocks for specific varieties, it is necessary to take into account a huge number of factors that affect the size and quality of the crop: from frost and virus resistance to the number of root suckers and planting density. As a result, each gardener creates his own unique knowledge base to get the best harvest.

So, for example, their innovative methods of growing sweet cherries on frost-resistant rootstocks are practiced in the Dutch nursery Fleuren , which annually sells about 400-450 thousand plant seedlings. In order to achieve the optimal ratio of juiciness, berries, their taste, caliber, resistance to damage, transportable endurance, the speed of the orchard entering full fruiting, its protection from climatic factors, etc. , the nursery workers abandoned the tall rootstock " Colt " and began to grow small trees. It turned out to be easier to protect them from bad weather and birds. In addition, this simplified the collection of fruits, and the compacted planting pattern made it possible to obtain a larger yield from the same area.

More than 20 varieties of cherries and cherries are grown in the nursery, among which are the most popular in the world Burlat , Vanda , Merchant , Karina , Kordia , Regina , and for each variety its optimal stock is selected. In Fleuren , depending on the cherry varieties, the rootstocks "Gisela" -3, -5, -6 and -12 were chosen.

However, despite the successful Dutch experience, not every farm manages to create the optimal combination of planting density, soil characteristics, irrigation regime, herbicide application, etc. Dwarf rootstocks require the use of well-drained, nutrient-rich soil and stable watering during dry periods. Hungarian breeders, for example, in one of the farms, not equipped with an irrigation system, on varieties Alex and Katalin failed to get large and beautiful fruits when using the rootstock "Gisela-5", which is considered more demanding on growing conditions than "Gisela-6" . At the same time, such a problem did not arise in neighboring Poland in prepared farms - the root system of plants, even during a snowless winter, demonstrated frost resistance, which, among other things, also contributed to the growth in popularity among European and American gardeners of both Gisela-5 and Gisela-6 ".

Colt rootstock is still quite in demand , which absorbs magnesium and calcium better than many others. On sandy, permeable soils, this creates an advantage by relieving cherries of magnesium deficiency. Nurseries grow seedlings on Colt also because it reproduces well with the usual horizontal layering. However, this stock is not frost-resistant enough and from the age of 6-7 it has a delayed incompatibility with such popular varieties as Burlat and Summit .

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Cherries - useful properties, composition and contraindications

Eliseeva Tatyana, editor-in-chief of the project EdaPlus.info

Yampolsky Aleksey, nutritionist

E-mail: eliseeva.t@edaplus.info, yampolsky.a@edaplus.info

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Abstract. The article discusses the main properties of sweet cherries and its effect on the human body. A systematic review of modern specialized literature and relevant scientific data was carried out. The chemical composition and nutritional value of berries are indicated, the use of sweet cherries in various types of medicine and the effectiveness of its use in various diseases are considered. Potentially adverse effects of cherries on the human body under certain medical conditions and diseases are analyzed separately. Considered scientific basics diets With her application.