

## **ARTICHOKE GROWING TECHNOLOGY (CYNARA) IN OPEN FIELD**

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**Abstract.** The article provides information on the history of artichokes and their chemical composition. Nutritive and medicinal properties and ways of their application are noted. A brief morphological characteristic of artichoke and its relation to environmental factors are given. It describes in detail the technology of growing artichokes in the open air: preparation of seeds for sowing, choice of site, soil preparation, fertilizers, methods of cultivation, measures for care and harvesting.

**Keywords:** artichoke, chemical composition, use, morphological characteristics, biological properties, agrotechnology, harvest.

The artichoke (Cynara) is a genus of plants in the Asteraceae family. Perennial vegetable crop. Homeland - Southern Europe and Tropical America, where the artichoke grows wild. As a delicacy vegetable, it was known to the ancient Greeks and Romans. It has long been popular in France and other European countries. He came to Russia under Peter I (at the beginning of the 18th century) from Holland. Originally grown as an ornamental and medicinal plant, it later became widespread as a vegetable plant. As a perennial crop, it is cultivated in the southern regions, as an annual - in the middle lane, up to the Moscow region and the Leningrad region.

**Chemical composition.** The receptacle contains nitrogenous substances, sugars, bitterness, dextrin, cynaropicrin, cynarin, tannins, fiber, inulin, carotene, vitamins C, B1, B2, B3, B5, B6, vegetable fats, mineral salts of potassium and iron, manganese, phosphorus, as well as flavonoids and caffeoylquinic acids. It is especially valued for the content of inulin (reserve polysaccharide), which is easily digestible and is recommended as a starch substitute for diabetes, as well as for a number of other useful properties, for example, the ability to prevent the development of atherosclerosis, have a bile and diuretic effect.

**Usage.** Artichoke heads are eaten raw, boiled, baked and fried. They must be properly processed before use. The sharp ends of the scales are cut off from the upper part, then the stem is cut off at the very base of the head. All sections, so that they do not darken, are moistened with citric acid. The flower ovaries are removed from the middle of the baskets with a metal spoon. Prepared

artichokes are washed well and tied with twine so that the scales do not crumble during cooking. After processing, the heads are immediately boiled, otherwise they will darken.

**Morphological features.** The artichoke plant is similar to the thistle plant, but its inflorescences are larger and of a different color (bluish). The stem is 1.5-2 m high. The leaves are large, pinnately dissected, green or grayish-green, gray tomentose on the underside. Inflorescences (baskets), for which artichokes are grown, are large (12-20 cm in diameter), flat-round, spherical or conical heads, covered with scales thickened at the base - leaves of green, gray or purple color. Flowers small, bluish. Cross pollination (with the help of wind and insects). The fruit is a large gray, marble-colored achene, in a hard shell. Seeds remain viable for up to 6 years.

**Biological features.** The artichoke is a heat-demanding plant, it does not tolerate frost well, at  $-1^{\circ}\text{C}$  the inflorescences are damaged, and at  $-2-3^{\circ}\text{C}$  they die. When cultivating a perennial crop, plants must be covered for the winter. The artichoke is moisture-loving, but does not tolerate waterlogging of the soil. In conditions of lack of moisture, growth is weakened, inflorescences are crushed, the receptacle becomes rough. With excess moisture and low air temperature, the roots rot. The artichoke loves fairly fertile soil. Responsive to fertilization, especially organic.

Propagated by seeds and root suckers. Vegetation period 160-190 days.

**Agricultural technology.** The soil for the artichoke is prepared in the fall, it is dug up, manure and compost are added (up to  $6-8\text{ kg} / \text{m}^2$ ). In the spring, 2 weeks before sowing, the soil is loosened (if necessary, dug up) and a complete mineral fertilizer ( $100\text{ g} / \text{m}^2$ ) is applied. In the south, where the artichoke is grown as a perennial crop, seeds previously soaked in water are sown in the spring in a row, placed at a distance of 20-25 cm from each other; row spacing is 70-90 cm. In the future, the plants are thinned out, leaving 40-50 cm between them. The seeding depth is 3-4 cm. The artichoke grows in one place for 3-4 years, the crop begins to give from the 2nd year of life.

During vegetative propagation, root suckers are used, which are formed in spring at the base of the overwintered plant. They are separated, rooted and grown before planting in the ground in pots placed in a greenhouse, greenhouse or nursery. Seedlings are grown in boxes or nutrient pots at a temperature of  $12-15^{\circ}\text{C}$ . Plants are regularly watered with warm water and fed with weak solutions of organic and mineral fertilizers. In late April - early May, seedlings are hardened and planted in open ground in the 2nd half of May. By this time, it reaches 50-60 days of age and is in the phase of 2-3 true leaves. Before planting,

rotted manure is introduced into the holes and mixed with the soil, the distance between plants in a row is 40-50 cm, the row spacing is 70-90 cm. Sometimes they are planted according to the scheme 70×70 cm. Planted plants are watered. In the future, regular, abundant watering, loosening, top dressing and weeding are carried out. With the advent of inflorescences, the plants are watered less frequently. To obtain larger heads, no more than 2-3 peduncles with 3-4 baskets are left on the plant, the rest of the shoots are removed. It is necessary to ensure that the plants are not damaged by slugs and rodents.

Artichokes begin to be harvested in July-August, cutting off the heads selectively, as they reach technical maturity (when the scales in their upper part begin to open). Heads are cut off with a part of the stem 15 cm long. Productivity is 1-1.2 kg per 1 m<sup>2</sup>. Cut heads can be stored for up to 2 months at 0-1°C.

With a perennial artichoke culture, after harvesting, the plants are cut off, and the rhizomes are spudded and covered with peat, humus, straw or other materials. In the middle lane, after harvesting the heads before the onset of frost, the best plants are dug up, transferred to storage with a low positive temperature (not lower than 0°C) and dropped vertically in wet sand or laid on racks so that they do not touch each other (to avoid diseases). In the spring, after frost, they are planted in open ground in a permanent place. In the 2nd year, the artichoke goes through normal development and, 105-120 days after planting, forms technically mature heads. Maximum yields are obtained in the 2-3rd year.

#### References.

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