



THE INFLUENCE OF NPK AND BIOHUMUS ON THE PRODUCTIVITY AND HARVEST QUALITY OF THE “ZAKOVAT” VARIETY OF TOMATO IN ALTINSAY DISTRICT.

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ABSTRACT

The article contains information about the cultivation technology, biological calcification, biophysical properties, chemical composition of the fruit, moisture and heat requirements, and the effect of biohumus on the growth and development of tomato plants grown in the conditions of Altinsay district, Surhandaya region.

It is known that organic agriculture is a system of production of ecologically clean products without the use of chemicals that harm the environment in the cultivation of agricultural crops. At the same time, certificates are required for imported agricultural and food products in accordance with organic systems in developed countries. This requires the development of organic agriculture in our country, the development of biological methods of combating various diseases and pests of agricultural crops, which are considered an integral part of it.

In fact, organic agriculture is not new for Uzbek farmers, our ancestors practiced organic farming before the advent of agrochemicals. In doing so, they widely used local manure, ash, old wall cuttings and other waste to grow the intended crop. Currently, biohumus made from these wastes is considered important in the

production of agricultural products. Based on this technology, we can drastically reduce the amount of chemical fertilizers applied to the earth and obtain ecologically clean products. Lands with biohumus are significantly different from lands with organic fertilizers, they enrich the land with organic substances and ensure long-term preservation of the land's fertility. This means that we need to widely use biohumus products in our agriculture.

Today, many types of cultivated plants are disappearing in the cultivation of agricultural products on a global scale. According to sources, 90 percent of wheat varieties have disappeared in the Chinese fields over the last hundred years. Scientists estimates that more than half of the world's food crop diversity has been lost over the past century. According to the World Wildlife Fund (WWF), the diversity of species has decreased by 30% on the



global scale between 1970 and 2007, and by 60% in tropical regions. The world of plants has satisfied the basic needs of humanity in any period of development. For this purpose, international programs are being implemented to find and preserve plant forms that have preserved various characteristics and unique characters, and to establish a rational use of them. One such plant is the tomato plant. Tomato (Latin: *solanum lycopersicum*) is an annual, perennial herbaceous plant in tropical climates. It is widely cultivated as a vegetable crop. Although the name „tomato” is used in scientific terminology, in Uzbekistan both the plant and the fruit are called tomato or "pamildori" (among the people). Tomato is derived from the Italian word *pomo d'oro*, which means "golden apple". In English, Japanese, Korean, it is called tomato, in Chinese it is called *qie*, in French it is called *tomatobaum*, *zbaumtomate*, *baumtomatenstrauch*, and in Spanish it is called *tomate*. The tomato first originated in the American continent. Tomatoes are eaten both raw and as an ingredient in various dishes and salads or drinks. Today, tomato is one of the most widely cultivated vegetable crops in the world due to its valuable and dietary properties.

To date, more than 1,000 different varieties of tomatoes have been created, and they are grown in open and protected areas (for example, in greenhouses). At present, about 4.4 million hectares (in 2009) are planted with tomato in the world, and 153 million tons of gross crops are grown. If the maximum yield of tomatoes in open fields is 100-150 t/ha, in modern greenhouses this indicator can be 600 t/ha. In order to provide the population with fresh fruits year-round in Uzbekistan, tomatoes are

grown in heated greenhouses in three seasons: autumn-winter (from the beginning of August to January), winter-spring (from January to July) and long-term (starting in August and ending in until July). Tomato fruits are distinguished by their valuable nutritional and complete indicators. Calorie (energy value) of ripe fruit - 19 kcal. It contains 4-8% of dry matter, the main part of which is carbohydrates (glucose and fructose). Also, the fruits contain protein (0.6-1.1%), organic acids (0.5%), connective tissue (0.84%), pectin substances (up to 0.3%), starch (0.07-0.3 %) contains mineral substances (0.6%). Importantly, tomato fruits contain a large amount of lycopene, various vitamins (B1, B2, B3, B5, vitamin C, provitamin A). The tomato root system is extremely branched, penetrates into the deep (150 cm) layer of the soil and grows up to 1.5-2.5 meters in diameter. When there is enough moisture, the roots appear easily from all parts of the stem, so tomatoes can be propagated not only by seeds, but also by vegetative methods. The stem of a tomato is herbaceous, grows upright or lying down, has strong or weak branching, and grows from 30 centimeters to 2-3 meters, depending on the type of stem. Depending on the structure of the stem and leaves, there are three types of tomatoes: stemmed - with a thick stem, less branching, standing upright even with fruits; without a stem - the stem is thin, strongly branched, the fruit lies down under the influence of its weight; potato-like - large-leaved. Also, the tomato stem is determinative (the main stem and side branches grow moderately and ends with the formation of flowers) and indeterminate (the main stem differs in strong growth, the side branches can grow



up to 2-3 meters when removed) divided into types. Determinant varieties of tomatoes are grown in the open field, while indeterminate varieties are mainly grown in greenhouses. The flowers are bisexual, small, yellow, usually have 5-7 petals. The pollinators are located in 5-6 conical shapes. The seed of the flower is located inside the cone containing the pollinators in most varieties, which ensures that the tomato crop is self-pollinating in 95% of cases. In some varieties or in unfavorable weather conditions (hot temperature), the seed beak is located above the pollinators, in which the tomato flowers can be pollinated by outside insects or by the wind. The fruit is two-, three- and multi-chambered, juicy, berry. The weight of the fruits is from 50 to 1000 grams; the colour

can be red, pink, yellow, purple, white and even black; the shape can be round, round - flat, pear-shaped, plum-shaped. The seeds are small, flat, pointed, hairy, yellow-gray, 1000 seeds weigh 2.5-4.0 grams, and keep their fertility for 4-6 years. Tomato is a heat-loving plant. For its normal growth and development, the temperature is 20-25 °C, the relative humidity of the air is 40-60%. When the temperature drops below 15 °C, growth slows down, and at 0-1 °C, the plant dies. Extremely high temperature also has a negative effect on the growth and development of tomato plants. Also, tomato is a light-loving plant, and when it is grown in the shade, the stem grows long and slow, and it does not bear fruit. We need to pay great attention to these aspects when growing tomatoes.

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