BOTANICAL DESCRIPTION OF TOMATOES.

Hayitboyev Doniyor
Assistant of the Karakalpak Institute of Agriculture and Agrotechnologies
Usmanova Makbal
4th-year student of the Karakalpak Institute of Agriculture and Agrotechnologies

Annotation; *Methods of planting tomatoes and their advantages, as well as methods for increasing their yield using new methods.*

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Tomatoes belong to the genus Lucopersicon Journ of the Solanaceae family. The stem is erect, and even when very branched, it bends under the fruits. The face is covered with hard hairs. The length of these stems ranges from 2-3 cm to 15-20 cm. The growth of the spike stem and lateral branches stops with the formation of a inflorescence. The part of the spike above the first peak has a complex structure and consists of a different number of branches, branching in ascending order. The main stem of tomato varieties grown in open ground can be short (up to 30-50 cm), medium short (up to 51-90 cm), tall (131-200 cm), and very tall (over 200 cm).

Depending on the flexibility of the stem, it can be simple (semi-straight, horizontal) and rod-shaped. Depending on the shape of the stem's branching and the duration of the main stem's growth, roots are classified as determinant and indeterminant. In determinant tomato varieties, after the formation of 3-4 inflorescences, the growth of the main stem stops, and the tomato bush becomes short. In indeterminate varieties, however, the formation of new shoots takes a long time, and the stem becomes very tall. Stammed tomato bushes produce a lot of leaves.

Tomato leaves are odd-pinnate, truncated, of three types: simple leaf - consisting of variously truncated segments; potato leaf - large leaf segments; intermediate leaf - characteristic of stem tomato species. The inflorescence is a non-branching (simple), single-branching (semi-complex), or multi-branching (complex and very complex) cluster of varying lengths, located on the surface of the leaf axil. The first inflorescence is low (above 6-7 generations), medium-height (above 8-9 generations), and high (above 9 generations). The faster the tomato variety ripens, the lower the first inflorescence is located. The inflorescences are located between 1-2 leaves, without division by a leaf. In determinant varieties, the second, and in indeterminate varieties, the fourth and fifth inflorescences are the best.

Biology of flowers and fruits. Tomato flowers have a five-membered green calyx. The corolla consists of fused petals, yellow in color. There are five stamens, each with short filaments and a long yellow spider. Pollinators are arranged in a circle around the pollen, and the pollen is light green. In tomato varieties with multi-chambered fruits, due to the excessive

growth of the flower bed, the flowers fuse together, and the number of organs in each flower development cycle increases.

Sywret 1.

Tomato blossom: Few members - five parts (1,3,7); many members - more than five parts (2,4,5,6,8), yellow (1,2,4,5,6,7), light yellow (3,8), small (1,3,6,7), large (2,4,5,8), spread (1,2,3,4,5,8), and not very abundant (6,7).

Tomatoes belong to the category of autogamous plants. In natural conditions, cross-pollination does not exceed 2%. This can occur with the help of insects and thrips.

Tomato flowering begins with the first inflorescence 50-70 days after seedling emergence and flourishes from bottom to top. During the second inflorescence, the fruiting phase occurs, and the first inflorescence blooms 10-15 days after opening, while the fourth one blooms a week after the third. It takes 4-6 days from the opening of the inflorescences until uniform flowering. In conditions where the air temperature is below 12℃ and above 35℃ and humidity is very high, there is practically no pollination. In the conditions of our country, where the temperature is high, there are often long stamens, which leads to cross-pollination of plants. The fruit of a tomato is a fleshy fruit, and the semi-cultivated subspecies are multicellular. Tomato fruits vary in their weight, shape, color, and thickness of the skin surface. The fruit weighs 20-1000 grams, and its shape ranges from flat to cylindrical. The shape index varies from 0.5 to 1.5. The weight of the fruit varies during ontogenesis and depending on the growing conditions.

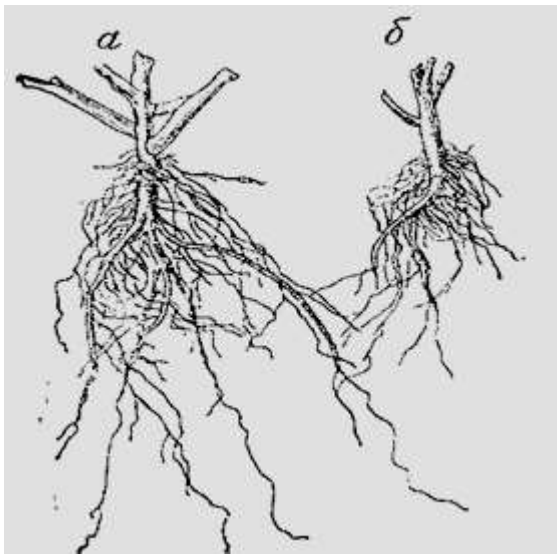
1 **2** **3**

Figure 2. Tomato fruit ripening phases:

1 - green, 2 - light red (blancheux), 3 - crimson.

Fruit development consists of two phases: the growth phase, which lasts about 30 days after the flower opening, and the ripening phase, which lasts 10-15 days. As the fruit of most tomato varieties ripens, the green color first turns white, then dark, then red, but the fruit continues to grow.

Tomato seeds



Root system of tomato plant a) when sown from seed;
b) when bending from the stand

A stand-up stem can develop adventitious roots in humid conditions. During the growing season, the stem becomes coarser. It produces cries from stem and leaf buds. Tomatoes begin to flower 40-70 days after germination. The flowers are self-pollinating. However, at high temperatures, up to 5% is pollinated from outside. Flowers do not pollinate when the air temperature is below 12°C and humidity and relative humidity are high. Pollination of the flower does not occur even when the air temperature is above 35°C and the relative humidity is very low (20-25%).

In early-ripening varieties, the period from seedling emergence to fruit ripening is 95-100 days, in early-ripening varieties 100-110, in mid-ripening varieties 110-120, and in late-ripening varieties 120-130 days.

When the most favorable conditions for growth and development are created, tomatoes, like other agricultural crops, can yield effective yields. heat, light, and nutrients are such conditions. Tomatoes grow mainly in tropical countries and are quite heat-demanding. Experiments have shown that plants do not flower at temperatures below 15°C and stop growing at temperatures below 10°C. The optimal temperature for tomato growth and development is 20-25°C. Tomatoes are sensitive to sunlight. The more light there is, the faster the assimilation process occurs, and the plants' demand for temperature, moisture, and

nutrients increases. When seeds are sown thickly, the temperature and humidity are high, and they become thin.

This plant is also demanding of soil moisture. For this, air humidity must dry up to 45-65 percent. When humidity exceeds 80 percent, flowers stop pollinating and fungal disease occurs during this time.

For obtaining a high yield, it is necessary to consider the demand for food. Tomato plants require a lot of potassium, calcium, nitrogen, and phosphorus from the main nutrients. Phosphorus plays a key role in tomato fruit formation. A percentage of the assimilated phosphorus is used for fruit development.

In the first months of tomato seedling development, it is necessary to apply phosphorus fertilizers, as it has a positive effect on the development of the root system, the formation of fruit elements and early flowering, and increasing the speed of fruit ripening. Phosphorus deficiency leads to the plant's inability to absorb nitrogen. As a result, the plant becomes short and fragile. Nitrogen plays a large role in the formation of the vegetative organs of plants. Proper fertilization with nitrogen fertilizers ensures fruit formation and faster ripening. With high nitrogen content, the plant develops strong leafing and strengthens its main stem. Fruit elements decrease, fruit ripening slows down, and fruit storability decreases. With a lack of nitrogen, the plant stops growing, the number of leaves decreases, and it turns light green.

The lower leaves turn grayish-yellow and fall off, and the number of fruits sharply decreases.

Potassium participates in the formation of the stem and fruiting elements. Potassium fertilizers ensure the movement of protein substances in plants. Potassium fertilizer ensures that plants do not get sick quickly

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