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BIOLOGICAL CHARACTERISTICS AND PLANT GROWTH CONDITIONS.

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ABSTRACT:

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

INTRODUCTION. Tomato is a heat-loving plant. Its seeds germinate at 10-12°C. For normal plant growth and development, the temperature should be around 25 °C. When the temperature drops below 15°C, the flowering of most species stops, and when the temperature drops below 10°C, vegetative organisms also stop growing. If the temperature drops to 0°C, tomatoes have a destructive effect on the flowers - frost-bitten spots appear on the fruits. If the temperature drops to 1-2°C, the plants will completely die. Currently created hybrid tomato varieties stand out because they can withstand 3-4 frosts. Even very high temperatures negatively affect the growth and development of tomato plants. When the temperature exceeds 32, their growth slows down, and when the temperature reaches 35, the plant completely stops growing.

Tomato is a heat-loving plant. Insufficient light slows down the growth and development of the plant. Most tomato varieties develop well on days when light lasts 10-12 hours, but some species grow better when day length is shortened, while others, on the contrary, grow longer. The water evaporation surface of tomato leaves is large, forming a powerful aboveground mass, the formation of which requires a large amount of water. For this reason, tomato plants, especially during the fruiting period, sink heavily into the soil. (soil moisture capacity should be 70%). If there is a lack of water during this period, the plant's tubers and fruits begin to fall off.

At the same time, it is advisable for tomato plants to have a uniform air humidity of 45-60. If the air humidity exceeds this level, the tubers do not germinate well and fall off, leading to fungal diseases. Tomatoes grown from seedlings with a higher root system require more moisture than tomatoes grown directly from seeds with a more deep root system.

The growing season of the tomato plant lasts a long time. The duration of the growing season is determined by the duration of the frost-free period under specific conditions after planting seedlings in the field. With favorable temperature and humidity conditions, seedlings begin to appear 4-5 days after sowing, and after 3-5 days, the first fruits appear. The leaves that appear after this gradually become more complex, and from the seventh or eighth leaf, all the characteristics of the plant's leaves are formed. After the plant produces 5-7 leaves, and late-maturing varieties produce 10-11 leaves, the first inflorescence forms. Subsequent inflorescences appear after every third, and sometimes every second, leaf.

Depending on the tomato variety and cultivation conditions, tomatoes begin to flower 50-70 days after sprouting. The fruits begin to ripen 40-55 days after flowering. When growing tomatoes from seedlings, it takes 100-120 days from the emergence of seedlings planted in a greenhouse until the harvest is ripe, depending on the variety and cultivation technology. Usually, with the onset of the first autumn frosts, the growing season of tomatoes stops. Tomato varieties differ from each other in morphological, biological, and economically significant traits and characteristics.

Growth period length. According to this characteristic, tomato varieties are divided into early-ripening (from planting to harvesting the first crop (48-53 days), medium-ripening (60-65 days) and late-ripening (68-72 days) varieties; Depending on the variety, the stem can be prostrate or erect. Species with erect stems do not require a large feeding area and are easy to care for using mechanization. Depending on the variety, the stem height can also vary. Tall tomato varieties often ripen late and are distinguished by the sparse arrangement of fruit branches - after 2-3 leaves. For this reason, the fruiting period of tall species is prolonged.

Low-growing species are characterized by densely arranged inflorescences after 1-2 leaves, rapid ripening, mass fruiting, and simultaneous ripening; leaves, depending on the plant variety, can have different cross-sections, shape, and surface structure (smooth or rough). Fruit size. Those weighing up to 70g are small-fruited, those weighing 70-100g are medium-fruited, and those weighing over 100g are large-fruited. It's better if the fruits of freshly eaten varieties are quite large. It doesn't matter if the fruit of the preserved species is large.

For pickling and canning, small-fruited tomato varieties are suitable. The shape of the fruit can be round-flat, round, elongated, or pear-shaped, depending on the plant variety. The fruit surface has indistinct or clearly visible edges. Ribbed fruit is an unacceptable characteristic of the variety, as it increases the appearance of the fruit on the skin; The color of the fruit depends on the color of the skin and the flesh visible through it. The color can be red, light red, or yellowish with a mixture of various shades of these colors.

Red-fruited varieties are rich in vitamin A (carotene). Bulvitamin is practically absent in varieties with a whitish-red color and especially yellow fruit. The compartmentalization of the fruit, i.e., the number of nests where the seeds are located, as well as their size, shape,

and arrangement, varies among different varieties. The smaller the rooms and the thicker their walls, the more beautiful the fruit will be. The number of chambers in each room and throughout the fruit can vary depending on the type of tomato. At the same time, few-seeded and many-seeded varieties are also encountered; the sweetness of fruits is determined by their chemical composition, in particular, the amount of sugar and acids;

Long-distance transportability depends on the thickness and hardness of the flesh and skin. The shell of products that are fully preserved must also be hard. One of the world's advanced technologies used in growing products has effectively implemented the hydroponic method of obtaining products.

The main elements of a typical greenhouse are: a semi-circular metal frame-type structure, the upper part of the greenhouse, the sides, and the ground area are covered with a special polyethylene film, protecting the plant from the effects of solar heat, aluminum curtains, right, left, back, and roof curtains, a ventilation system, containers for storing water and mineral fertilizers, etc. Plants planted in the greenhouse in August will grow and bear fruit until July of the following year. Many plants appear before the onset of winter frosts. They begin to ripen in the first half of November. However, this process slows down towards the decrease in sunlight. The main harvest of tomatoes grown in the autumn-winter period ripens in December-January. In February, when the amount of light increases, plants begin to bloom and bear fruit again. This profit will begin to ripen in the second half of March. It ripens in April. Fruiting continues until July, when tomatoes ripen in the field.

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