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**THE REACTION OF WATERMELON (*CITRULLUS LANATUS* (THUNB.)
MATSUM. ET NAKAI.) TO ENVIRONMENTAL FACTORS**

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ANNOTATION

Today information technology is often used in the fashion industry to maintain competitiveness. There is a growing need to leverage IT, artificial intelligence technology and create innovations to take advantage among the fashion houses and meet consumer demand.

Keywords: thermophilic, seeds, seedlings, leaves, stems, vegetative organs.

Introduction

Watermelon is a thermophilic plant of the squash family, but with low heat resistance. For watermelon to grow actively, the temperature must be above + 15 ° C and this temperature must be maintained for a long time, the total temperature must be at least 2000-2500 ° C.

Watermelon seeds begin to germinate at +14 ... + 16 ° C. Seedlings in 10 - 22 days, when the temperature changes from + 7 ° C to + 25 ° C, seedlings in 5–6 days at an average temperature of + 20 ° C, in the temperature range of + 15... + 32 ° C appears. Also, the soil temperature at a depth of 10 cm should be around a minimum of +12 ... + 15 ° C.

After 5–6 days after germination and germination, the first petals appear, and then every 3–4 days - in the next (second, fifth) short interval between leaves. ladi. Once the leaves have formed, growth and development slow down, and the seedlings take the form of small, erect shrubs that have not yet formed curls. The optimum temperature for watermelon growth and development is + 25... + 30oC during the day and + 15... + 20° C at night.

The minimum temperature for the development of watermelon plant was calculated + 12... + 15 ° C (depending on the type), with further decrease in temperature the growth and development of plants slows down, if the air temperature is below + 10 ° C the plant growth and development ceases altogether. Prolonged exposure to + 5... + 10 ° C is harmful to plants, in which case up to 40% of watermelon seeds die. At minus 1 ° C, the seedlings die and the adult plants are damaged. Fruits grow best on sunny days at a temperature of + 25... + 35 ° C. Temperatures of + 40 ° C and above can have a detrimental effect on flowers and fertilized eggs. At this temperature, only male flowers bloom and more round fruits are formed. Coagulation occurs in proteins at temperatures of + 45 ° C and above.

Watermelon is a drought tolerant crop due to its well-developed root system and high absorption capacity of the roots. This feature is unique to xerophytic plants. Due to its wide branched root system, watermelon is able to absorb a large amount of moisture from the soil,



and due to the fact that the main part of the roots is located on the surface of the soil (up to 30 cm), watermelon can make good use of small precipitation.

But at the same time watermelon is very demanding to moisture, which is especially evident in the early stages of plant development. If a young plant with 2-3 true leaves consumes 170 g of water per day, in the early stages of stem branching and when the first flowers appear - 250 g of water. A normally developed plant evaporates several liters of water during the ripening period. The dry matter content of the fruit is about 10%. When watermelon is harvested in the amount of 400-500 s / ha, it takes about 40-50 m³ / ha of water from the field.

In severe droughts, watermelons grow poorly, so more watermelon is needed when growing watermelons in arid areas. However, it should be borne in mind that high humidity can adversely affect the quality of the fruit.

The large and wide plates of watermelon leaves play an important role in resistance to dry weather. Drought tolerance is also increased due to the accumulation of large amounts of moisture in the fruit, which during the drought protects the plant from wilting from the fruit to the plant. Drought resistance of watermelon is explained by a high transpiration coefficient, which is 600, which is 2-3 times higher than drought-resistant crops such as corn and oats. However, during prolonged droughts, lack of moisture in the watermelon plant leads to the cessation of fertilization and the fall of the formed ovaries.

Watermelon has the ability to cool itself, which is more pronounced in watermelons than in other melons. Pumpkin and melon leaves often wither on hot days, which is not the case with watermelons. Intensive transpiration reduces leaf temperature to + 7 °C relative to ambient temperature and + 18 °C to soil temperature. The process of protein coagulation in watermelon at a temperature of + 44... + 54 °C helps to cool the leaf surface.

Watermelon consumes water unevenly. Watermelon's need for water is highest during the period of strong formation of vegetative and generative organs. Thus, 85-90% moisture is required from dry seeds for germination. Prior to fruit formation, soil moisture should be maintained at 70% of the total field moisture content of the soil, and 60% during the fruiting period.

Watermelon plants with good moisture content grow large leaves - each plant is 3.6 m² long and through a well-developed root system is able to absorb moisture not only from the soil surface, but also from deeper soil horizons. Due to the moisture in the soil, the interval from flowering of watermelon to the formation of mass fruit is important. Irrigation at the beginning of flowering accelerates the ripening of the fruit and increases the size of the fruit after flowering. Water consumption decreases with the completion of crop formation.

During the period of plant development, when the relative humidity is 50-60%, the optimal soil moisture in the 0-0.7 m layer is 75 ... 80% relative humidity. Increased soil and air humidity in cold weather has a much worse effect on watermelons than other melons. However, seedlings and adult plants are also susceptible to diseases (fusariosis, anthracnose and alternariosis). In addition, high humidity delays growth, prolongs the growing season and reduces sugar content. Watermelon is very demanding to light - it is a short-day light-loving plant. Optimal light period is 12-14 hours. However, watermelon flowering begins earlier on a short (12-hour) day than on a long day, and slows down plant growth on an 8-day day. The highest sensitivity to light occurs in the period before the appearance of 4-5 true leaves.

To provide the plants with better light, the plants should be evenly distributed in the field and weeds should be controlled in a timely manner. Good sunlight is especially important during flowering and ripening. Excessive plant density has a negative impact on fruit size and productivity, the number of ovaries and female flowers decreases, there is an increase in the development of vegetative organs, the ripening period. delayed.



In cloudy and cooler weather, watermelon stops growing, photosynthesis slows down, and less dry matter and sugar accumulate in the fruit.

Watermelon can grow in almost any type of soil, but this feature is observed when the soil is well aerated. Soils with heavy mechanical composition, high humidity and close to groundwater are not suitable for growing watermelons. The mechanical composition of the soil affects the yield more than the soil fertility.

Therefore, soils with light mechanical composition, well-heated, air and water permeability, deep groundwater and close to neutral pH are preferred. This type of soil allows the roots to grow well and use the oxygen supply in the soil.

In light to moderate sandy soils, the main root of the watermelon penetrates to a depth of more than 1 m, and in heavy sandy soils to a depth of only 70 cm. In addition, the lateral roots in light soils are thin and penetrate deep into the soil, while in heavy soils they are much thicker and spread mainly in the upper layers. Also, in light sandy soils, watermelons ripen 1-2 weeks earlier than in black soils.

The attitude of melons to soil salinity varies - it depends on the type, variety and level of soil salinity of the plant. Watermelon is the most resistant to soil salinity among melons. If the amount of water-soluble salts exceeds 0.3%, the soil is considered saline. The most common minerals in such soils are: NaCl, Na₂SO₄, NaHCO₃, CaSO₄, CaCl₂, MgSO₄, MgCl₂. Watermelon is the most resistant to sulfate salinity. Even small amounts of sodium sulfate and chloride (from 1 to 5 g of NaCl and 2 to 18 g of Na₂SO₄ per 1 liter of soil solution) have a positive effect on plant growth, although the main stages of development in fruits at the beginning an increase in the amount of sugar is observed. However, high concentrations of salts have a negative effect on plants.

All melons absorb nutrients from the soil at a relatively high level. Depending on the fertilizers used to produce watermelon 100 s / ha: - 15.3-34.0 kg of nitrogen; 5.3-11.0 kg of phosphorus; Absorbs 23.6-41.8 kg of potassium.

Nitrogen is found mostly in the leaves, potassium in the stems, and phosphorus in all the organs of the plant. 1 kg of dry matter of watermelon contains 17.4 g of potassium, 12.1 g of nitrogen and 2.9 g of phosphorus. Nitrogen primarily affects the formation of generative organs, especially in plants. Under certain conditions, an increase in nitrogen levels in the soil increases the flowering of female flowers.

Watermelon has the highest phosphorus requirements in the early stages of development. Prolonged failure to meet the demand for phosphorus leads to a weakening of the process of protein synthesis and accumulation of organic mass in plants, which slows down the growth process. Potassium affects the metabolism, growth and development of plants, the formation of generative organs in them, increases their resistance to environmental stresses. It regulates the ratio of male to female flowers and affects the location of the fruit on the stem. In addition, the use of potassium fertilizers increases the early ripening of melons.

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