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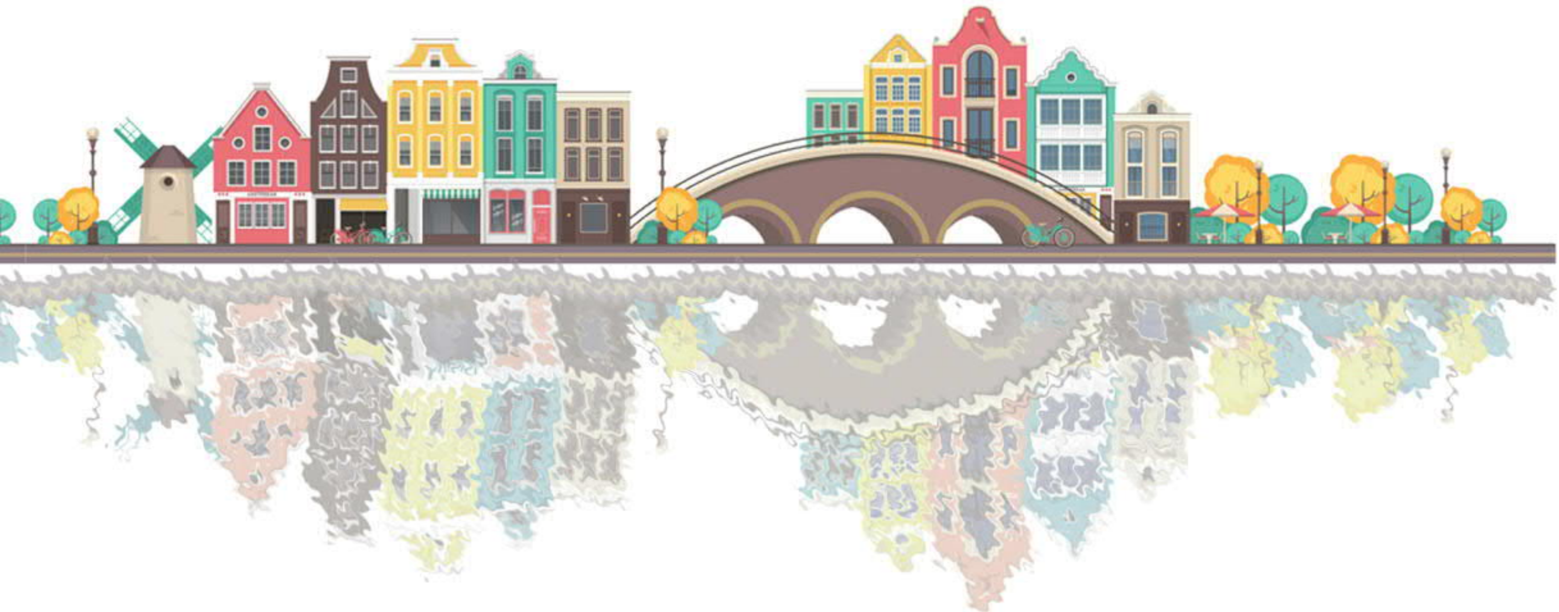

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METHODS OF USING MICROELEMENTS TO INCREASE SALT RESISTANCE OF COTTON

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The copper micronutrient, in turn, has a positive effect on increasing the activity of enzymes in seeds and increases seed germination. Also, when treated with copper during the growing season of cotton, it quickly passes through the leaf to its mesophyll, participates in physiological and biochemical processes, and especially in the enzymes involved in photosynthetic phosphorylation increases its activity. This in turn is of great importance in ensuring the productivity of plants [1,2]. Copper is an essential element in plant life. It makes up 0.0002 per cent of the plant content. When 30 quintals of cotton are harvested from each hectare of land, 45-60 g of copper is extracted from the soil. Copper accumulates in large quantities in cotton leaves as well as in seeds. The physiological significance of copper in plant life lies in its inclusion in copper-containing proteins and enzymes [3,4].

When plants are not supplied with enough copper, the activity of copper-storing enzymes decreases. Copper is also involved in the nitrogen metabolism of plants [5,6]. If there is a lack of copper in cotton, the number of leaves in plants decreases sharply. They change colour and turn light green, the product of photosynthesis is reduced. It has been found that there is a close relationship between the copper supply of cotton and the activity of the enzymes polyphenol oxidase and ascorbic-oxidase [7,8].

In the absence of copper, 52.8% of respiratory disturbances in cotton leaves were observed during the experiments. In such lands, the plant lags in growth and development. In the absence of copper, the yield of cotton is slightly reduced. Due to copper deficiency, cotton does not absorb enough nitrogen, because of the decrease in yield [9,10].

Copper is one of the pivotal elements necessary for plant development. Its need is evident not only in the nutrient solution but also in field conditions. The average amount in plants is around 0.0002% or 0.2 mg / kg. This amount depends on the type of plant and soil. Copper occurs in the soil in the form of sulfides, sulfates, carbonates, in connection with the organic matter of the soil. The higher the alkalinity of the environment, the less it passes to the plants. Plants assimilate copper from the soil in the form of cations (Cu^{+}). It is abundant in young growing parts and seeds of the plant [11,12].

Due to the lack of copper, the growth and flowering of plants cease. Chlorosis begins in the leaves, and in cereals, spikes do not develop. The tips of fruit trees dry up. Copper fertilizers give good results, especially in swampy soils, because in such soils its amount is very small. Copper sulphate salt, copper smelter wastes can be used as fertilizers [13,14].

When 30 quintals of cotton are harvested from each hectare of land, 45-60 grams of copper are extracted from the soil. Copper accumulates in large quantities in cotton leaves as well as in seeds. The physiological significance of copper in plant life is its existence into copper-containing proteins and enzymes [15,16].

When plants are not adequately supplied with copper, the activity of copper-storing enzymes slows down. Copper is also involved in the nitrogen metabolism of plants. Experiments have shown that if there is a lack of copper in cotton, the leaf level in plants decreases sharply. They change colour and turn light green. The weight of the photosynthesis product decreases. Under conditions of sufficient copper, cotton effectively absorbs nitrogen fertilizers, which has a positive effect on yield weight [17,18].

Improving the salt resistance of cotton is one of the most pressing issues today. Therefore, it is of great practical importance to develop and introduce into production methods to increase the salt resistance of plants, including cotton [19,20].

Field experiments were performed under moderately saline soil conditions. In order to increase the individual resistance of Bukhara-8 cotton variety to soil salinity. The seeds were treated with a solution of sodium chloride (513 mM) and copper sulfate salt (31.25 mM) in a ratio of 1/1.

The average weight of seeds and cotton in the experimental versions treated with solutions of sodium chloride and copper sulfate salts during the growing season was 40.5 quintals. At the same time, the additional yield compared to control increased by 13.44%. In this experimental variant, it was scientifically substantiated that the fibre content was 2.8% higher than the control, the fibre length was 3.8% higher, and the weight of 1000 seeds was 9.8% higher. Yield quality indicators varied in direct relation to cotton growth and development conditions, soil salinity, and application of salinity tolerance method.

It was noted that in the version treated with solutions of copper chloride salts with sodium chloride before sowing of cotton seeds and during the mowing stage of cotton vegetation, all the quality indicators of the crop were higher than other options. The fibre content is 36.5%; fibre length was 32.5 mm and weight of 1000 seeds was 127.6 grams.

It has been observed that the growth rate of cotton depends on soil salinity. In the versions treated with sodium chloride to the seeds under conditions of moderate soil salinity, the plant height was on average 112.75% higher than the control. In the variants treated with a solution of sodium chloride and copper sulfate, the plant height was 17.14% higher than the control. It was noted that in the variants treated with sodium chloride and copper sulfate on the seeds and during the general mowing of the vegetation, the plant height increased by 24% compared to the control.

According to the results, the yield weight was higher in all experimental options compared to the control option. The average weight of the seeds in the variants treated with sodium chloride solution was 37.4 quintals. In this option, the yield was 4.76% higher than the control.

In the control variant, the figure was 35.7 quintals. In the experimental variant, where the seeds were treated with solutions of both sodium chloride and copper sulfate salts, the average yield was 38.8 quintals, with an additional yield of 8.61%

compared to the control. The average weight of seeds and cotton in the experimental variants treated with solutions of sodium chloride and copper sulfate salts during the growing season was 40.5 quintals. Rapid and salt-increasing methods for determining the salt resistance of cotton have been developed, and the positive effects of these methods on cotton yield and its quality have been studied and proposed for production.

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SECTION VII. BIOLOGY