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COMPARATIVE ANALYSIS OF COPPER AND BORON ON THE FRUIT FORMATION OF DIFFERENT VARIETIES OF COTTON IN THE BUTTANIZATION PHASE

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Annotation
An important factor in increasing the production of raw cotton, along with the introduction of progressive methods of cotton cultivation technology, the use of new high-yielding varieties, is the rational and effective use of mineral and microelement fertilizers.
In recent years, in the agro-industry of plant nutrition with microelements and the practice of their application in agriculture, much attention has been paid to intracomplex compounds of microelements.
The article presents the data of the growing experiment on the effect of copper and boron on the number of sympodia, buds, flowers and bolls at different periods of growth and development of cotton varieties.
As a result, it was shown that the addition of copper and boron to the main fertilizer at a dose of 1 and 2 norms per 1 kg of soil stimulates fruit formation and the number of bolls per 1 cotton bush.

Keywords: microelements, copper, boron, fruiting, cotton, butanization phase, fruit organs, sympodial branches.

Introduction

Studies to determine the importance of microelements for cotton have been conducted since the 1930s, however, only in the last 25-35 years has a study of the physiological role of individual microelements in cotton nutrition been launched, disturbances caused by their deficiency in metabolism, the critical period of the need for cotton in microelements, their concentrations in the nutrient medium for normal growth and fruiting of plants, the interaction between macro-microelements in the process of nutrition, as well as the effect of microelements on the intake, transformation and use of basic nutrients by cotton . At present, the need for microelements for the growth and development of a plant has been proven[1].

The expediency of using trace elements for agricultural crops is determined by the fact that they are characterized by the strength of the metal bond with the chelating agent and the difficulty of replacing it with another metal; ability to resist microbiological attack; resistance to hydrolysis and solubility, lack of ability to precipitate, good digestibility by the plant [2].

Previously, in our works [3,4,5,6], it was shown that, along with other trace elements, copper and boron were found in the fruiting organs of cotton in greater quantities than in the leaves. The data obtained served as the basis for further research with these microelements. It is of interest to study the comparative effect of microelements on the formation of fruit branches, the dynamics of flowering, and the formation of bolls of promising cotton varieties.

Objects and Methods of Research

Studies of the effect of trace elements of copper and boron on the growth and development of cotton were carried out with varieties Namangan-34, Bukhara-102, S-65-24 and Omad. For this purpose, an experiment was laid on the vegetation site of the Uzbek Research Institute of COTTON GROWING in Wagner vessels.

Trace elements were introduced into the soil before sowing at a dose of 1 and 2 mg per 1 kg of soil (single rate 2 mg/kg, double rate 4 mg/kg soil (according to Belousov). Irrigation was carried out in all variants with one rate based on PPV 70-70- 60% All records, observations were carried out according to the methodology of the Uzbek Research Institute of COTTON GROWING.

The number of sympodial branches, buds, bolls was counted at different periods of growth in the development of cotton varieties: the phase of the beginning and mass budding, fruit formation and ripening. Accounting was carried out every 5 days, starting from the budding phase in the control and experimental variants. [1,3,4,5].

Results and Discussions

Studies have shown that there is a varietal specificity of cotton on the effect of microelements [6,7].

It was found that the influence of copper on the number of formed sympodia was greater than that of boron, both at the beginning and during the period of mass budding. Under the influence of copper at a dose of 2 norm per 1 kg of soil, the number of sympodia increased on average in pieces per plant in order of decreasing effect in the variety Namangan-34 (3.2), S-6524 (2.8), Bukhara-102 (0, 3), and Omad (0.2). At the same dose (2 mg/kg of soil), under the influence of copper, the number of flowers and buds and flowers in the varieties Namangan-34, C-6524 in the budding and

flowering phase increased. The introduction of copper into the soil at a dose of 1 soil norm leads to an increase in buds in the variety S-6524, Omad.

The effect of boron on the increase in the number of buds and flowers is much more noticeable in varieties Bukhara-102 and Omad in the budding phase. So in the variety Bukhara-102 on the 15th day of accounting, the number of buds per plant in the control was 7 pieces, while in the experimental number of buds was on average 7.7 pieces per plant. In the variety Namangan-34, the number of buds at the same time in the control was 10.2 pieces per plant, in the experimental variant, where boron was added to the soil at a concentration of 1 mg 11 pieces on average per plant. In the experimental variant of variety S-65 24, the effect of boron on the dynamics of bud formation was insignificant and there was a positive effect only on the 35th day of accounting for buds. In contrast to the above varieties, the effect of boron on the number of buds of the Omad variety was greater in the first 25 days of accounting, on average, it increased from 6.8 to 7.5 per plant per plant. After 25 days, the number of buds per plant in experimental variants with the use of boron remained at the control level (diagram1.2).

The influence of copper on the number of buds of cotton varieties was less compared to the control. The exception is the Namangan-34 and S-65-24 varieties, where on the 15th day of accounting there was an increase in the number of buds to 8.1 pieces on average per plant in the Namangan-34 variety.

In variety C-65 24, the number of buds under the influence of copper increased by 20-25 on the 30th day of accounting. The number of buds increased to 10.8 per plant. As it grows and develops in the flowering phase on the days of recording, the maximum number of flowers per plant occurs in the Namangan-34 variety on August 22, and in the C-65 varieties 24, Bukhara-102 and Omad on August 18: for all varieties, approximately 2 flowers per plant on average.

In the Omad variety, the flowering phase ends by August 22. In varieties Bukhara-102 and S-65 24, the flowering rate decreases after August 18. It is extremely important to note that under the influence of copper and boron, the number of buds and flowers decreases in all varieties of cotton in the fruiting phase. This indicates a positive effect of these microelements on the rate of growth and development, accelerating the process of formation of fruit organs. Figure 3 shows in the experimental variants the number of bolls per plant in all varieties is greater than in the control. The effect of boron on the formation of boxes was greater than that of copper.

Conclusion

Thus, the addition of copper and boron to the main fertilizers at a dose of 1 and 2 holes per 1 kg of soil stimulates fruit formation and the number of bolls per bush per plant, as a result of the fact that, under the influence of microelements, the amount of plastic substances used in the formation of bolls increases.

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diagram.1

The influence of honey on the number of buds of cotton varieties

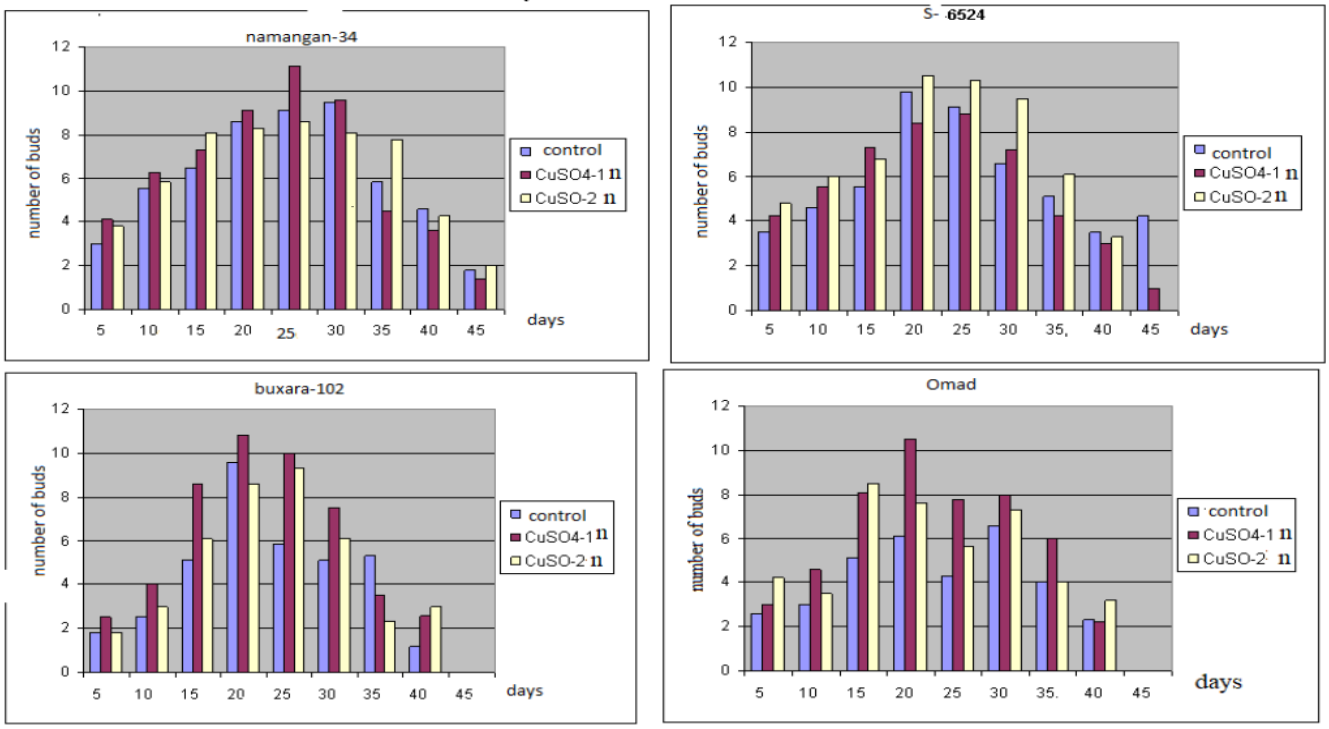

diagram.2

The influence of boron on the number of buds of cotton varieties