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Micronutrients organic seed production of vegetable plants
Mikroelementy w ekologicznej produkcji nasion roślin warzywnych

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One of the most important conditions for obtaining high-quality yields of seeds in the organic production of vegetable plants is not only to provide plants with essential nutrients (macronutrients), but also to ensure their adequate micronutrient uptake. Increased absorption of these elements by the vegetable plants, grown for seeds, is associated with the intensification of metabolic processes during the transition from the vegetative to generative, flowering and seed production.

The use of micronutrients is becoming increasingly important, especially in the ecological systems of cultivation of seed plants, because they determine the effective use of nutrients, phosphorus, potassium and other essential elements in the development of biomass and seed formation on mother plants. Micronutrients, as components or activators of enzymes, are involved in many metabolic reactions and fulfill important physiological functions in plants.

Our findings and the literature reports indicate the positive effects of boron, silicon, nickel and selenium in the production of vegetable seeds. It was found that these elements and selenium affect the development of the generative organs of selected vegetable species, facilitating an important role in pollen germination and pollen tube growth. It was also shown that the positive yield-increasing effects of these micronutrients, used in the cultivation of vegetables belonging to the family Solanaceae (tomatoes, eggplant and peppers), Brassicaceae (cabbage and broccoli), as well as in cucurbits (cucumbers, squashes and carrots). The optimal application of titania in the organic vegetable seed production can increase the seed yield even two times, depending on the plant species, compared to the conventional inorganic fertilizers. Titanium induces metabolic changes in plants and their resistance to stress and disease, especially pest and disease.

The use of selenium-containing formulations in the cultivation of seed production, as well as in eggplants and melons, led to an improvement in the quality of the seeds and their health, but their largely limited the interaction of seeds by pathogenic fungi. The significantly reduced infections of mother plants by diseases compared to the control, increased the yield of seeds.

The results of studies on the application of formulations containing selenium in biostimulating seedlings of seed of cabbage vegetables showed an improvement in their growing value. Selenium applied to leaves in cabbage crops increased the resistance of plants and positively affected the quality of the crop and the metabolism of plants.

Deficiency of these micronutrients leads to lower resistance of seed plants to adverse environmental conditions and disease and decline in seed yield and deterioration of its quality.

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