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The title of the doctoral dissertation:

The study of physico-chemical characteristics of sugar beet depending on the applied agronomic factors and magnetic-stimulation.

Summary:

Magnetic field can be used as a physical factor to improve the germination, growth and development of plants. The purpose of this study was to determine the effect of mineral fertilization and pre-sowing magnetic stimulation of seeds on root and leaf yield, mineral content and amount of water, ash, volatiles, protein and carbon in leaves and roots of the three selected sugar beet varieties. A magnetic field of 40 mT induction was used in 60 seconds. The research material was divided into 4 groups: control, seeds stimulated only by magnetic field, seeds stimulated by magnetic field before sowing and then fertilized with mineral fertilizers and only fertilized with mineral fertilizers during vegetation. The doses of mineral fertilizers sown on experimental plots were determined on the basis of the soil test. Experience was done in 2014 and 2015.

During vegetation, growth and development of plants were observed. The yields of roots and leaves, heavy metals, macro and micro components, amount of water, ash, volatiles, proteins and carbon in leaves and roots, and sugar content in sugar beet roots were examined. Mineral fertilization of sugar beet has resulted in a significant increase in yield and basic macro elements in roots. While magnetic field stimulation resulted in an increase in root and leaf yield and sugar content in root beet roots. In addition, pre-sowing magnetic stimulation of sugar beet seeds reduced the transfer of macro and micro components and almost completely blocked the transfer of toxic metals from the soil to the plant.