IMPACT STUDY ELECTRO PROCESSING IRRIGATION WATER AND THE SOLUTION ON GROWTH AND DEVELOPMENT OF PLANTS

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In this paper, the experimental study of influence of electrophysical water treatment and nutrient solutions on growth and development of plants, reasoned modes magnetic treatment and processing in the field of corona discharge of irrigation water and nutrient solution in a greenhouse.

Energy-saving technologies nutrient solution, magnetic treatment, corona discharge field, biometric measurements.

One of the promising areas of improvement of irrigation technology in industrial greenhouses is to use drip irrigation. This method is the main method of irrigation for growing plants succinct hydroponics method, which involves the creation of optimal water, air, nutrients and temperature settings in the root zone of plants. Volume substrate for the life of the root system is limited and is chemically neutral environment, as the water supply, nutrients and heat to maintain specified conditions must be timely and in adequate quantities [4, 6].

The main focus intensifying greenhouse vegetable production is the transition to energy-saving production technologies using magnetic treatment and processing in the field of corona discharge of irrigation water and nutrient solutions for growing vegetables in greenhouses in soil and hydroponic method.

The purpose of research - must be installed by of experimental research as acting electromagnetic processing complex combination of irrigation water on the growth, development and the process of mineral nutrition of plants. To prove processing modes that theoretically established [6].

As a result of treatment vary physico-chemical properties of liquids processed [5]. In the processing carried out continuous monitoring of parameters of irrigation water and fertilizer solutions.

In the complex magnetic treatment nutrient solutions offered additional processing in the field of corona discharge, thus enhancing the effect of magnetic treatment and conduct disinfection solutions [1, 5].

On the basis of changes in physical and chemical properties of water at electromagnetic treatment can be concluded that as the parameter information on the extent of the electromagnetic treatment appropriate to use pH and okslyuvalno-reduction potential (ORP) of water or solution.

Obroblyuvaly irrigation water to a magnetic field of 100 mT induction at three times the magnetization. The experiments were conducted in a greenhouse dirt, equipped with drip irrigation system.

Research electrophysical impact the combined treatment of irrigation water on the growth and development of plants were conducted in accordance with the method of field experiment. Experiments were carried out as follows: 1st option (control) - seeds soaked in tap water and it watered plants 2nd option - seeds soaked in magnetic-activated water and it watered.

The test plot area of 8, placed by regular repetition. Experiments were conducted with cucumbers hydride "Topolyok." While vegetation noted the following phenological phases: sowing plants stairs, the appearance of the third leaf, early bloom.

Thus on the basis of studies we can conclude that the magnetic processing of irrigation water has a positive impact on the growth and development of plants. Thus there earlier flowering and fruiting, increasing biomass plants. Increased yield of vegetable crops.

When watering cucumbers with water treated in the field of corona discharge, accelerating their growth, with growth in excess becomes more noticeable and statistically significant during the emergence of the third leaf (30.06), early flowering (8.07) and bearing (14.07) and is respectively 10.25, 15 and 17 cm. The best results are obtained when processing mahnitoaktyvovanoyi water was corona discharge,

with growth in excess plants in the above periods was respectively 14, 19 and 22.5 cm.

In the combined treatment of irrigation water (in the magnetic field and the field of corona discharge) increases the yield of vegetable crops. Yield Cucumber under the current technology of cultivation was 26.8 kg / m2, and the processing of irrigation water in the field of corona discharge - 30.7 kg / m2, mahnitoaktyvovanoyi water treated in the field of corona discharge - 32.05 kg / m2, ie increased productivity respectively 14.7% and 21.2%.

Conclusions

On the basis of the research can be concluded that combined treatment of irrigation water has a positive impact on the growth and development of plants. Thus there earlier flowering and fruiting, increases plant biomass, increased yield of vegetables. The best results are obtained when processing mahnitoaktyvovanoyi water was corona discharge.

Results of field experiments confirmed the correctness of the established regime of combined water treatment: treatment with magnetic, magnetic induction 100 mT at three times the speed of magnetization of water and 0.5-1.0 m / s. For processing the field corona discharge corona electrode voltage at 15.5 kV, the distance between the electrode and the plane 3 cm, the distance between the electrodes - 5 cm, the processing time - 1 min [5].