

INFLUENCE OF NITROGEN NUTRITION AND PROTECTION FROM WEEDS ON PRODUCTIVITY OF SOYBEANS IN THE RIGHT-BANK FOREST-STEPPE OF UKRAINE

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In this article results of two years old researches of joint influence of chemical protection, nitrogen mineral fertilizers and inoculation of sowing material on productivity and quality of soybean harvests in the Right-bank Forest-steppe of Ukraine were analyzed.

Field experiments in the course of from 2017 to 2018 were conducted in a stationary crop rotation of a laboratory of selection and seed production of the separated subdivision of National University of Life and Environmental Sciences of Ukraine “Agronomic Research Station” in a village Pshenychne of a Vasylkivskyi district of a Kyiv region. A kind of soil that is used in experiments is deep little-humus medium-loam black soil, contents of humus of which is 4,43 percent (by Tyurin), pH of salt extract of which is 6,7 – 7,0, adsorption capacity of which is 319 mg-equiv per 1 kg of soil and contents of light-hydrolyzed nitrogen (by Cornfield) of which is 106 – 114 mg per 1 kg of soil.

In the experiments technical and practical effectivities of soil (Prymekstra TZ-Gold, 4,5 l/ha and a tank mixture of Zenkor, 0,4 l/ha with Kommand, 0,2 l/ha) and post-emergence (a tank mixture of Basagran, 2,5 l/ha and Harmony, 0,008 kg/ha) herbicides at applying of nitrogen mineral fertilizers and preliminary inoculation of sowing material are studied.

Agrotechnics in experiments is generally accepted for the Forest-steppe zone. Seeds of soybeans of a variety Madison were sown in the first decade of May in the calculation 600-700 thousand plants per 1 hectare.

It was found out that tank mixtures of herbicides provided high-level technical efficiency under conditions of a mixed type of weediness in both soil – Zenkor (0,4 l/ha) + Kommand (0,2 l/ha) and post-emergence ones – Basagran (2,5 l/ha) + Harmony (0,008 kg/ha). In the specified doses, two-component mixtures of herbicides lowered a total number of monocot and dicotyledonous weeds by 41-78

percent on the 30th day after introduction and by 61-67 percent before harvesting, and lowered crude weight of all the weeds almost by 80 percent.

It was noticed that effective control of weediness of crops with a mixture of drugs Zenkor and Kommand, preliminary inoculation and introduction of nitrogen mineral fertilizers in a dose N₉₀, promoted increment of plant productivity and formation of higher yield. Its veracious increase in relation to a control without inoculation, fertilizers and chemical weeding achieved almost 3 tons per hectare on these variants. At the same time, negative influence of endogenous mineral nitrogen and an herbicide background on processes of biologic nitrogen fixation in soil wasn't revealed.

Results of researches show positive influence of rational use of agrotechnical measures listed above on improvement of soybean harvest quality, in particular on increment of protein contents in grains by 6,4 percent.

Keywords: soybeans, soil and post-emergence herbicides, technical effectivity, tank mixtures, inoculation, nitrogen fertilizers, effectivity of application.