

**IMPACT OF POLYMER GELS «RITIN-10» AND «V-415 K» ON WATER SUPPLY OF
CEREAL CROPS UNDER SOIL DROUGHT CONDITIONS**

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In the recent years the polymer gels have been used widely in agriculture because of their high water-retention properties. It is very promising to study the ability of the hydrogels to increase the moisture capacity of sands and sandy soils and thereby ensure an effective moisture supply of plants under the conditions of moisture deficit. The impact of the hydrogels on barley and wheat water supply under the conditions of soil drought has been studied in a microfield experiment during the growing seasons of 2015 and 2016. The study has been carried out on soddy-podzolic sandy loam soils in the vessels at a special installation («drier»). A scheme of the experiment included three treatments: 1) control with application of 90 kg ha⁻¹ of mineral nitrogen, phosphorus and potassium fertilizers (NPK); 2) hydrogel + NPK fertilizers introduced to a depth of 10–12 cm; 3) hydrogel + NPK fertilizers introduced to a depth of 20–22 cm. The results of the studies showed that the hydrogel introduced to a depth of 10–12 cm did not improve the soil water-retention properties. The positive effect of the hydrogel was monitored only at an earlier occurrence of cereal crops seedlings in comparison with the field conditions. The application of the hydrogel to a depth of 20–22 cm led to a significant ($p < 0.001$) increase in yield, especially in the treatment with introduction of the potassium hydrogel. The availability of potassium helped plants to tolerate a lack of moisture more easily, therefore it is recommended to apply the hydrogel to a depth of 20–22 cm and to carry out the water recharge irrigation before the sowing.

Keywords: hydrogel, moisture content, barley, wheat, productivity, vegetation vessels, special installation «drier», soil moisture meter.