

ROLE OF AQUASORB ABSORBENT IN IMPROVING SOIL WATERHOLDING CAPACITY

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During the last years hydrogel polymers have been widely used in agriculture due to their high water retention capacity. The ability of hydrogels to increase the moisture content in light-textured soils is promising and, thus, can be used to ensure effective moisture supply for plants in conditions of moisture deficiency. The paper considers the possibility of using AQUASORB hydrogel as a water-retaining additive to improve the waterholding capacity of sandy loam chestnut soil (Kazakhstan). The waterholding capacity of the hydrogel and light chestnut sandy loam soil with the hydrogel, introduced with the rates of 20 and 40 kg ha⁻¹. The water retention capacity was determined on the WP4-T psychrometer Dewpoint Potential Meter. The conducted studies showed that after the hydrogel application, the amount of available water for plants increased from 17% to 30%, i. e. the reserves of productive moisture were from 24 to 50.4 mm of water layer, depending on the hydrogel rate. The best effect of the hydrogel on the soil water-retaining capacity was observed when hydrogel was applied at the rate of 40 kg ha⁻¹. The range of available (productive) moisture from 7–10% in the control to 26–30% at the maximum hydrogel concentration. When the hydrogel was applied, the soil density decreased and its moisture capacity increased.

Key words: hydrogel, soil moisture potential, medium loamy soil, psychrometer.