Application of Super-Hydro-Grow Polymer instead of Irrigation:

1. The Factor of Drought Tolerance

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Abstract

An experiment was accomplished with two maize hybrids and their parental inbreds, to examine efficiency of biodegradable "Super-Hydro-Grow" polymer, the water bearer of soil humidity, concerned to classical irrigation regime, on the chernozem (location of Zemun Polje).

In year with moderate humidity and temperatures (2006), the hybrids, in polymer treatment, had similar yield (12.2 t ha^{-1}), which was 12 and 28 % more than in irrigation conditions. Meanwhile, in dry year with high temperatures (2007), the higher yield was established in polymer treatment by 2 and 32 % (10.8 and 9.4 t ha^{-1}), related to irrigation conditions; the susceptible hybrid has 1/3 higher yield in polymer treatment, too.

The parental inbreds had lower, but equable yield (3.2 to 3.7 t ha^{-1}) in polymer treatment, compared to irrigation (2.8.to 4.9 t ha^{-1}) in 2006, but in 2007 polymer treatment yielded up to 50 %, compared to irrigation (1.1 to 2.1 t ha^{-1}).

The following parameters: water content in soil and plant (leaves), fresh and dry weight, free energy and pseudo-specific density of leaves, in flowering phase, were used to explain developed differences between applied treatments.

Key words: maize hybrids, growth, yield, Super-Hydro-Grow polymer, irrigation

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