

GLYPHOSATE-RESISTANT AND CONVENTIONAL SOYBEAN RESPONSE TO FOLIAR MANGANESE FERTILIZER. Mark L. Bernards, Lucas Perim and Irvin L. Schleufer. Assistant Professor, Undergraduate Research Assistant and Research Technologist, Department of Agronomy and Horticulture, University of Nebraska, Lincoln, NE 68583.

Recent reports suggest that glyphosate-resistant soybean varieties may be more responsive to manganese (Mn) fertilizer applications than conventional soybean varieties. In some studies this research was conducted on soils that were deficient or marginally sufficient for plant available Mn. Our objectives in this research were 1) to evaluate the response of conventional and glyphosate-resistant soybean varieties to foliar applications of Mn on silt loam soils with sufficient plant available Mn, and 2) to measure the interaction of Mn and glyphosate applications on glyphosate-resistant varieties. Experiments were conducted in 2007 and 2008 at the South Central Agricultural Laboratory (SCAL) near Clay Center, NE, and at the Lincoln Agronomy Farm in Lincoln, NE. Eight soybean varieties (four conventional and four glyphosate-resistant) were planted in 30-in rows at 150,000 seeds/A in. Preemergence herbicides were applied to control weeds. Manganese sulfate (0.33 lb Mn/A) was applied foliarly at V3-V4, V7-V8, and the R1-R2 growth stages. Glyphosate was applied at the V5-V6 to select treatments. Grain was harvested using combines and yields were calculated. There was no yield difference in response to Mn fertilizer application between the glyphosate-resistant and the conventional varieties (each classification represented the average of 4 varieties). Manganese application had an inconsistent effect on yield (averaged across all 8 varieties). It was higher (1.8 bu/A) in one site year, lower (1.6 bu/A) in one site year, and not different in two site years. Manganese application did not affect the yield of individual varieties within a year, with two exceptions. Glyphosate applications to the glyphosate-resistant soybeans also had an inconsistent effect. It reduced yield (2.2 bu/A) in one site year, increased it (2.3 bu/A) in one site year, and had no effect in two site years. There was no interaction between glyphosate and Mn applications on soybean yield.