

GIANT RAGWEED COMPETITIVENESS IN SOYBEANS AS INFLUENCED BY POSTEMERGENCE GLYPHOSATE APPLICATIONS AND ROW SPACING. Kurt D. Maertens, Christy L. Sprague, and Loyd M. Wax, Graduate Research Assistant, Assistant Professor, and Professor, University of Illinois, and USDA-ARS, Urbana, IL 61801.

Giant ragweed is becoming an increasing problem in Illinois production fields. Additionally, control failures with postemergence herbicides have become more prevalent throughout the state. In 2001 and 2002, field experiments were conducted to: 1) evaluate giant ragweed's competitiveness with soybeans planted in three different row spacings 2) evaluate the competitiveness of giant ragweed injured by postemergence applications of glyphosate, and 3) evaluate growth and seed production of surviving giant ragweed plants. At the University of Illinois' Northern Illinois Agronomy Research Center in DeKalb, 3 by 9 m plots of glyphosate-resistant soybeans were grown in a randomized complete block design with four replications. Soybeans were planted in row-spacings of 76, 38, and 19 cm and treated with 0.84, 0.42 and 0.21 kg ae/ha of glyphosate all containing 1.0% w/w AMS. Giant ragweed that emerged after the herbicide application was removed by hand-weeding. Giant ragweed competitiveness and regrowth was not affected by soybean row spacing. However, soybean yield and giant ragweed growth was significantly affected by the application rate of glyphosate. In 2001, 0.42 and 0.21 kg ae/ha of glyphosate reduced soybean yields by 31% and 65%, respectively. While in 2002 the same rates of glyphosate reduced soybean yields 27% and 20%, respectively. Glyphosate applied at 0.42 and 0.21 kg ae/ha did not effectively control giant ragweed. Plants that survived these applications produced 273 and 485 seeds per plant, respectively. Although 0.84 kg ae/ha of glyphosate provided 95% or more control of giant ragweed there were a few plants that survived and produced as much as 100 seeds per plant. Giant ragweed plants injured by herbicides still have the ability to compete effectively with soybeans and cause dramatic yield reductions.