

EFFECTIVENESS OF PREPLANT SOYBEAN HERBICIDES ON GLYPHOSATE-RESISTANT GIANT RAGWEED. Mark M. Loux, Jeff M. Stachler, and Anthony F. Dobbels, Professor, Extension Program Specialist, and Research Associate, Department of Horticulture and Crop Science, The Ohio State University, Columbus, OH 43210.

Field research was conducted in Ohio in 2007 to determine the effectiveness of PRE herbicides for control of glyphosate-resistant giant ragweed in no-tillage soybeans. Herbicides were applied on May 4 and 8 in Licking and Butler Co., respectively, when giant ragweed plants were 2 to 8 and 5 to 30 cm tall. PRE herbicide treatments were followed with two POST applications of glyphosate, at rates of 1.7 and 0.8 kg ae/ha. The response of individual plants and overall control were measured 21 DAT and in early October. PRE treatments that controlled at least 95% of emerged plants 21 DAT at both locations included: glyphosate (1.7 kg/ha) plus 2,4-D ester; paraquat plus 2,4-D ester or metribuzin; and glufosinate plus 2,4-D ester or metribuzin. PRE application of glyphosate at rates up to 3.4 kg/ha killed no more than 82 and 53% of individual plants at Licking and Butler Co., respectively. Combinations of glyphosate (8.4 or 1.7 kg/ha) with chlorimuron- or cloransulam-containing products did not provide acceptable control of emerged plants at either location, which indicated that plants within each population were resistant to both glyphosate and ALS inhibiting herbicides.

Regrowth of herbicide-injured plants and emergence of additional plants resulted in a reduction in control between 21 DAT and the time of POST glyphosate application, which occurred approximately 45 DAT. Giant ragweed control 45 DAT at Butler Co. exceeded 80% only for combinations of glyphosate (0.8 or 1.7 kg/ha) with 2,4-D ester. At Licking Co., control exceeded 80% for the following combinations: glyphosate (3.4 kg/ha), cloransulam, and flumioxazin; paraquat, chlorimuron, and metribuzin; and glufosinate, chlorimuron, and metribuzin. POST glyphosate applications had little activity on giant ragweed at Butler Co., and control at the time of soybean harvest did not exceed 78% for any treatment. POST glyphosate applications had more activity on giant ragweed at Licking Co, compared with Butler Co., due to a lower level of resistance in the former. Late-season control at Licking Co. ranged from 91 to 94% for PRE treatments consisting of a combination of either glyphosate (1.7 kg/ha), paraquat, or glufosinate, plus chlorimuron and metribuzin.