

RELATIVE TOLERANCE OF UNIQUE HORSEWEED (*CONYZA CANADENSIS*) POPULATIONS TO 2,4-D. Melissa M. Kruger, Greg R. Kruger, Vince M. Davis, Stephen C. Weller, and William G. Johnson, Research Associate, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN, 47907, Graduate Research Assistant, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN, 47907, Assistant Professor, Department of Crop Sciences, Urbana, IL 61801, Professor, Department of Horticulture and Landscape Architecture, Purdue University, West Lafayette, IN 47907, and Professor, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN, 47907.

Since the introduction of glyphosate-resistant soybean in 1996, growers have relied heavily on postemergence glyphosate for weed control in no-till soybean. This weed management strategy has led to the evolution of several glyphosate-resistant weeds including horseweed. With the evolution of resistant weed species and the advent of 2,4-D resistant traits, 2,4-D will provide another herbicide to apply with glyphosate for added control of glyphosate-resistant horseweed. The objective of this study was to determine the effect of 2,4-D on four Indiana horseweed populations with varying tolerance to 2,4-D. The study included treatments of 0, 140, 280 and 560 g ae/ha of 2,4-D amine and an additional treatment of 280 g/ha of 2,4-D plus 840 g ae/ha of glyphosate. The horseweed seeds were germinated in the greenhouse and then transplanted into the field when seedlings were 4 cm in diameter. The plants were sprayed when they were between 5 and 10 cm tall. At least one plant survived from three of the four populations tested that went on to produce seed following application of 280 g/ha of 2,4-D plus 840 g/ha of glyphosate. After exposure to 560 g/ha of 2,4-D, one population had a plant that produced seed. However, 2,4-D at 280 g/ha reduced seed production by greater than 95% in each of the four populations tested. Variable responses of individual plants in each of the four populations suggests that there is potential for the evolution of 2,4-D resistance in horseweed.