INVESTIGATION OF MULTIPLE HERBICIDE RESISTANCE IN SELECTED INDIANA HORSEWEED POPULATIONS. J. Earl Creech, Vince M. Davis, and William G. Johnson, Graduate Research Assistant, Graduate Research Assistant, and Assistant Professor, Purdue University, West Lafayette, IN 47907.

Resistance to glyphosate is an emerging problem in Indiana horseweed populations. However, little is known about the propensity of glyphosate resistant horseweed to also harbor resistance to other herbicidal modes of action. The objective of this experiment was to screen glyphosate resistant horseweed samples collected in southeast Indiana in 2003 for multiple herbicide resistance. A total of 52 horseweed populations were selected, each representing a different degree of tolerance (low to high) to glyphosate, and were grown in a greenhouse in fall 2004. Treatments were applied to 2 to 4 inch horseweed rosettes and included 2,4-D (1 lb/A), cloransulam-methyl (0.05 lb/A), paraquat (1.5 lb/A), glufosinate (0.84 lb/A), atrazine (2 lb/A), chlorimuron (0.02 lb/A), and mesotrione (0.19 lb/A). At 15 DAT, no visual differences were evident among horseweed populations with respect to tolerance to 2,4-D, glufosinate, atrazine, or mesotrione. Regrowth of paraquat treated horseweed was common in three of the populations (33 to 45% of the plants had resumed growth) while many others had no survivors. The horseweed populations screened also appeared to exhibit variable tolerance to cloransulam-methyl and chlorimuron, with 5 to 9 of the populations showing little or no visual injury at 15 DAT.

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