

DISTRIBUTION AND CHARACTERIZATION OF ALS RESISTANCE IN INDIANA HORSEWEED (*CONYZA CANADENSIS*) POPULATIONS. Greg R. Kruger, Vince M. Davis, Andrew M. Westhoven, Valerie A. Mock, Stephen C. Weller, and William G. Johnson, Graduate Research Assistant, Graduate Research Assistant, Graduate Research Assistant, Graduate Research Assistant, Department of Botany and Plant Pathology, Professor, Department of Horticulture and Landscape Architecture, Associate Professor, Department of Botany and Plant Pathology, Purdue University, West Lafayette, 47907.

Horseweed has become a problematic annual weed in no-till soybean in Indiana. Horseweed has evolved glyphosate resistance, making it difficult to control in no-till systems which rely on glyphosate alone for weed control. Using chlorimuron or cloransulam-methyl are the two most commonly recommended herbicides for post-emergent herbicide control of glyphosate-resistant horseweed in soybean. However, populations have been found which are resistant to both glyphosate and ALS herbicides. In Indiana, glyphosate-resistant horseweed was found in 56% of samples collected from soybean fields between 2003 and 2005. In 2006, the same samples that were tested for glyphosate resistance were screened for ALS resistance in the greenhouse. Ten plants from each population were sprayed with 17.5 g ai/ha of chlorimuron-ethyl and ten were sprayed with 48 g ai/ha of cloransulam-methyl. Approximately 20% of the populations had resistance to chlorimuron, and approximately 10% were resistant to cloransulam-methyl. Less than 2% of the populations tested were resistant to both glyphosate and ALS herbicides. These results indicate nearly 75% of horseweed populations collected from soybean fields were herbicide-resistant to either glyphosate or ALS. Since few populations had resistance to both glyphosate and ALS, tank mixing the two herbicides may remain a viable short-term postemergence option for controlling horseweed in no-till soybean.