

RESPONSE OF SELECTED INDIANA HORSEWEED (*CONYZA CANADENSIS*) POPULATIONS TO GLYPHOSATE RATES. Vince M. Davis*, J. Earl Creech, and William G. Johnson, Graduate Research Assistant, Research Assistant, and Assistant Professor, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907-2054.

The threat of glyphosate-resistant horseweed has been growing in geographical distribution and abundance across agricultural landscapes in many states since it was first reported in 2000. However, little has been reported about the differing levels of tolerance to glyphosate among different horseweed populations. The objective of this experiment was to evaluate the efficacy of glyphosate on horseweed populations collected from southeast Indiana in 2003. 388 horseweed samples were screened for glyphosate tolerance, and 116 demonstrated less than 60% visual control at 21 days after application of 1.72 kg ae/ha glyphosate. Based on this initial screen, 3 susceptible populations and 18 resistant populations were selected for a dose response experiment. The resistant populations selected demonstrated 14 to 53% control following the 2X application. These populations were sprayed with eight rates of 0, 0.22, 0.43, 0.86, 1.72, 3.45, 6.90, and 10.35 kg ae/ha glyphosate. At 15 DAT 100% of the resistant samples survived at the 1X rate while the susceptible populations were clearly deceased. At both the 2X and 4X rates, 55% to 94% of the populations across replications appeared to be surviving while only 11% to 39% of the populations are surviving the 8X rate. No populations survived at the 12X rate.