

INVESTIGATING INDIANA HORSEWEED (*CONYZA CANADENSIS*) POPULATIONS FOR RESPONSE TO 2,4-D. Greg R. Kruger, Vince M. Davis, Stephen C. Weller, and William G. Johnson, 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.

The herbicide 2,4-D is often used as a preplant herbicide to help control horseweed and other existing broadleaf weeds in no-till soybean production. This is an especially important practice to control horseweed populations that are resistant to glyphosate. However, reports of poor horseweed control following preplant 2,4-D applications have occurred several times the last couple of springs. Between 2003 and 2005, approximately 450 horseweed populations were collected from across the state of Indiana and characterized for their response to glyphosate in previous experiments. In this experiment, we evaluated the response of previously collected horseweed populations to 2,4-D. Horseweed plants were grown in the greenhouse and 2.5 to 5 cm plants were sprayed with 280 g ai/ha of 2,4-D amine. Plants were evaluated for visual response at 28 days after treatment to determine if any populations had elevated tolerance to 2,4-D. All populations had greater than 90% visual control, and no resistant plants were found. However, differences were observed in the survivorship of horseweed plants in some populations. Four populations were selected for a subsequent dose response experiment with similar methods. The dose response results indicated one population had more tolerance to 2,4-D at rates below the maximum labeled rate. ED₅₀ values for the more tolerant biotype were approximately twice as high for visual ratings and four times as high for dry weights. While differences at this level seem insignificant, increased selection pressure and applications under less than optimal conditions could lead to the evolution of resistant populations.