

EMERGENCE, SURVIVORSHIP, AND SEED PRODUCTION OF GLYPHOSATE-RESISTANT HORSEWEED IN NO-TILL SYSTEMS. Vince M. Davis and William G. Johnson, Research Associate and Associate Professor, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907.

Horseweed (*Conyza canadensis*) biotypes resistant to glyphosate are commonly found in no-till fields in the eastern cornbelt. Horseweed has generally been considered a winter annual weed species, but tactics to control it solely as a winter annual weed routinely fail. Furthermore, grower surveys from southeast Indiana in 2003 indicated many soybean producers considered horseweed a problematic summer annual and winter annual species. The objective of this study was to determine emergence timing, plant survivorship, and seed production capabilities of a GR horseweed biotype in the presence and absence of other winter annual weeds and/or soybean. A field study was conducted from October 2003 to October 2004 and repeated in an adjacent field from October 2004 to October 2005 in fields following no-till soybean production. Both fields had moderate infestations (approximately 1 plant m⁻²) of GR horseweed escapes protruding through the soybean canopy at crop harvest prior to trial initiation. Winter survival of plants that emerged in the fall of 2004 was 20% by late April 2005 and was inversely related to rosette size in the fall. Horseweed densities were the highest in mid May of both years and over 90% of the plants at this time emerged in the spring. Plant survival from mid May to mid October was 3% and 21% in 2004 and 2005, respectively. Horseweed plants which protruded above the soybean canopy by early August had greater late season survivorship and produced more seed than horseweed plants below the crop canopy. Average seed production of horseweed which protruded above the canopy was 27,200 and 58,320 seeds plant⁻¹ in 2004 and 2005, respectively. Our research indicates horseweed can behave primarily as a summer annual weed in this region and produce significant amounts of seed when uncontrolled in soybean production.