

GLYPHOSATE-RESISTANT HORSEWEED POPULATION DYNAMICS ARE INFLUENCED BY INTEGRATED WEED MANAGEMENT PRACTICES IN NO-TILL CROPS. Vince M. Davis, Greg R. Kruger, Andrew M. Westhoven, and William G. Johnson, Research Associate, Graduate Research Assistant, Graduate Research Assistant, and Associate Professor, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907.

Horseweed, *Conyza canadensis*, is an increasingly common and problematic weed in no-till soybean production in the eastern cornbelt due to the frequent occurrence of biotypes resistant to glyphosate. The objective of this study was to determine the influence of crop rotation, winter wheat cover crops (WWCC), residual non-glyphosate herbicides, and burndown application timing on the population dynamics of glyphosate resistant (GR) horseweed. A field study was conducted from 2003 to 2005 in a no-till field located in southeastern Indiana where glyphosate-resistant biotypes are a common occurrence in no-till fields. The experiment was a split-plot design with crop rotation (soybean-corn or soybean-soybean) as main plots and management systems as subplots. Management systems were evaluated by quantifying in-field horseweed plant density, and seedbank density. Crop rotation did not influence in-field horseweed or seedbank densities at any data census timing. Burndown herbicides applied in the spring were more effective at reducing horseweed plant densities than when applied in the previous fall. Horseweed seedbank densities declined rapidly in the soil by an average of 76% for all systems over the first ten months prior to new seedrain. Despite rapid decline in total seedbank density, seed for GR biotypes remained in the seedbank for at least two years. Therefore, to reduce the presence of GR horseweed biotypes in a local no-till weed flora, integrated weed management (IWM) systems should be developed to reduce both GR and GS horseweed biotypes.