IMPACT OF SPRING-APPLIED, RESIDUAL HERBICIDES ON WINTER ANNUAL WEED POPULATIONS AFTER CROP HARVEST. Jeff W. Barnes, William G. Johnson, Kelly A. Nelson, and Reece A. Dewell, Post-Doctoral Research Associate and Assistant Professor, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907. Purdue University, West Lafayette, IN 47907; Research Assistant Professor Greenley Research Center, University of Missouri, Novelty, MO 63460; Post-Doctoral Research Associate, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907.

Field experiments were conducted in Missouri during 2001 through 2003 to determine if applications of preemergence (PRE) corn and soybean herbicides would impact the populations of winter annual weeds one year after herbicide application. Residual herbicides were applied PRE prior to planting corn and soybean. In-season weed control was provided by postemergence applications of glyphosate. In the fall following corn and soybean harvest, winter annual weeds were counted in two 1-m2 areas per plot. These areas were marked in the fall and counts were made in early February, April and prior to planting the corn or soybean crop.

The dominate species in these trials were henbit and common chickweed with populations of other winter annual species relatively low and highly variable. Herbicide applications made prior to planting the crop in 2001 and 2002 were generally effective in reducing henbit populations in the fall of those years but by late-spring populations of henbit and common chickweed were similar to the non-treated control. There was a high degree of natural mortality of henbit and common chickweed during both the winters of 2002 and 2003. If winter annual mortality was lower, as would occur during a milder winter, the residual effect of the herbicides might have had a greater impact on spring populations.

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