

INFLUENCE OF SOIL APPLIED HERBICIDES ON WEED SPECTRUM AT POSTEMERGENCE TIMING IN SOYBEAN. Julie M. Young, Bryan G. Young, and Joseph L. Matthews, Researcher, Assistant Professor, and Researcher, Department of Plant, Soil, and General Agriculture, Southern Illinois University, Carbondale, IL 62901.

Field studies were conducted at one location in 2001 and two locations in 2002 to determine the influence of soil residual herbicides on the weed spectrum present at the time of postemergence (POST) glyphosate application in soybean and the subsequent effects on weed control with glyphosate and soybean yield. Herbicide treatments included 11 different soil applied herbicides or herbicide premixes applied at planting followed by glyphosate POST when weeds were 25 to 30 cm. Single and sequential applications of glyphosate were also evaluated. All soil applied herbicides except flumetsulam and cloransulam reduced giant foxtail density at the POST timing compared to the nontreated in 2001 and 2002. Giant foxtail density was reduced to the greatest extent by treatments that included s-metolachlor or flufenacet. Cloransulam, chlorimuron & sulfentrazone, flumetsulam, and metribuzin reduced common cocklebur density in both 2001 and 2002. Ivyleaf morningglory density was reduced by sulfentrazone, chlorimuron & sulfentrazone, flumioxazin, and cloransulam in both years. Giant ragweed density was reduced by cloransulam, flumioxazin, chlorimuron & sulfentrazone, and metribuzin in 2002. All soil applied herbicides reduced common waterhemp density in 2002 except flumetsulam and cloransulam. Common waterhemp density in cloransulam treated plots was 2 times greater than nontreated plots, most likely due to reduced soil shading and competition from giant ragweed. In 2001, giant ragweed, prickly sida, and yellow nutsedge densities were increased in pendimethalin treated plots compared to the nontreated. Giant foxtail, common cocklebur, and common waterhemp control 28 days after the POST application of glyphosate was not influenced by weed density at POST since control was at least 90% in all herbicide treated plots. However, giant ragweed and ivyleaf morningglory control 28 days after POST tended to be greater in plots with reduced densities of these weeds at POST. Soybean yield was greatest at all three locations in plots treated with cloransulam, chlorimuron & sulfentrazone, flumioxazin, flumetsulam or metribuzin. The results of these studies suggest that soil applied herbicide selection should be based on broadleaf weed spectrum with emphasis given to controlling the most competitive broadleaf weeds.