

CONTROL OF PROBLEMATIC COMMON RAGWEED WITH GLYPHOSATE AND ALTERNATIVE HERBICIDES IN SOYBEAN. Justin M. Pollard\*, Brent A. Sellers, and Reid J. Smeda, Graduate Research Assistant, Post Doctoral Research Assistant, and Assistant Professor, Department of Agronomy, University of Missouri, Columbia, MO 65211.

A population of common ragweed has been identified resistant to glyphosate in Missouri. Field experiments were designed to evaluate herbicide management options in glyphosate-resistant soybean. The site containing the resistant population was used as one location and a site containing a susceptible population was used as a second location. Labeled rates of lactofen, chlorimuron-ethyl, cloransulam-methyl, imazethapyr, and bentazon were evaluated alone and tank mixed with 0.84 kg ae/ha (1X) of glyphosate. In addition, glyphosate alone at 1X and 2X rates were applied; an untreated control was also included. Herbicide applications were made when common ragweed reached a height of 12 cm. The experimental design was a randomized complete block with five replications at the resistant site and four replications at the susceptible site. At the time of application, up to 20 common ragweed plants were flagged in each plot, with 50% of the flagged plants harvested at ground level 3 weeks after treatment (WAT), and the remaining plants harvested 6 WAT. All of the treatments significantly reduced mean plant dry weight compared to the untreated control. At 3 WAT, glyphosate at 1X and 2X rates resulted in 68 and 75% reductions of common ragweed dry weights, respectively, compared to the untreated control at the resistant site. Tank mixes of cloransulam-methyl, chlorimuron-ethyl, bentazon, imazethapyr, and lactofen with glyphosate at 1X resulted in common ragweed dry weight reductions 13 to 55% greater than glyphosate alone at 1X. At 3 WAT, applications of chlorimuron-ethyl, imazethapyr, cloransulam-methyl, bentazon, and lactofen were less effective than glyphosate alone at the 1X and 2X rates. At 6 WAT, single applications of glyphosate at the 1X and 2X rates reduced common ragweed plant dry weight by 85 and 92%, respectively, compared to the untreated control at the resistant site. Application of chlorimuron-ethyl, imazethapyr, cloransulam-methyl, bentazon, and lactofen were less effective than glyphosate alone at 1X. With the exception of bentazon, tank mixes of the aforementioned herbicides with glyphosate at 1X reduced common ragweed dry weight 14 to 56% compared to glyphosate alone. Common ragweed mean plant dry weights at 3 and 6 WAT were lower at the susceptible location when compared to the resistant location, with the exception of bentazon at 6 WAT. At the resistant site, there were no differences in soybean yields between plots treated with glyphosate alone at the 1X and 2X rates along with the glyphosate tank mixes. However, yield was significantly lower where lactofen, chlorimuron-ethyl, cloransulam-methyl, imazethapyr, and bentazon were applied alone. Soybean yield was similar among treatments at the susceptible site; likely a reflection of the effectiveness of the chemical control program.