

EVALUATION OF GLYPHOSATE TANK-MIX PARTNERS IN GLYPHOSATE TOLERANT SOYBEAN. Kevin W. Bradley, Jimmy D. Wait, and Jianmei Li, Assistant Professor, Research Associate, and Research Specialist, Department of Agronomy, University of Missouri, Columbia, MO 65211

Field experiments were conducted at two locations in Missouri during 2004 to evaluate the effect of various glyphosate tank-mix combinations on weed control, soybean phytotoxicity, and soybean yield compared to applications of glyphosate alone. The potassium salt of glyphosate was applied alone at 0.77 lb/A or in combination with 0.004 lb thifensulfuron, 0.016 and 0.02 lb imazamox, 0.13 and 0.19 lb acifluorfen, 0.5 lb bentazon, 0.094 lb lactofen, 0.008 and 0.016 lb cloransulam, 0.004 lb chlorimuron, 0.094 lb fomesafen, and 0.006 lb flumetsulam when weed size ranged from 2 to 4 inches in height and also when weed size ranged from 6 to 8 inches in height. Greater than 90% late-season control of prickly sida, tall waterhemp, giant foxtail, Pennsylvania smartweed, and ivyleaf morningglory was observed at both locations with all herbicide treatments, regardless of application timing. Pre-harvest weed density counts and biomass were also similar among all herbicide treatments and application timings. These results indicate that the addition of either of these herbicides to glyphosate did not improve control of prickly sida, tall waterhemp, giant foxtail, Pennsylvania smartweed, or ivyleaf morningglory compared to applications of glyphosate alone, regardless of application timing. Some visual soybean injury was observed with all treatments containing acifluorfen, thifensulfuron, imazamox, lactofen, chlorimuron, and fomesafen, but this injury was transient and ranged from 1 to 5% by 21 days after treatment. At both locations, all herbicide treatments provided similar but significantly higher soybean yields than the untreated control.