

EFFECTIVENESS AND CONSISTENCY OF TANK-MIX PARTNERS WITH GLYPHOSATE FOR POSTEMERGENCE APPLICATIONS IN SOYBEAN. David K. Powell, Bryan G. Young, Douglas J. Maxwell, and Gordon K. Roskamp, Graduate Research Assistant, Professor, Southern Illinois University, Carbondale, IL 62901, Principal Research Specialist, University of Illinois, Urbana, IL 61801, and Professor, Western Illinois University, Macomb, IL 61455.

Field studies were conducted in eight locations in Illinois to determine any positive or negative interactions when tank-mixing postemergence broadleaf herbicides with glyphosate in glyphosate-resistant soybean. Glyphosate was applied alone (860 g ae/ha) and in combinations with lactofen (105 and 210 g ai/ha), fomesafen (165 and 330 g ai/ha), flumiclorac (30 and 60 g ai/ha), imazethapyr (70 g ai/ha), and chlorimuron + thifensulfuron (6 + 2 g ai/ha). Treatments were applied at an early postemergence EPOST weed height (8 to 13 cm) and at a late postemergence (LPOST) weed height (15 to 25 cm).

Soybean injury at 7 DAT was influenced mostly by the addition of PPO-inhibiting herbicides with injury for these combinations ranging from 10 to 31%, with the greatest amount of injury observed from lactofen at either rate. In general, soybean injury by 14 DAT decreased to approximately half of the levels observed at the 7 DAT evaluation and continued to dissipate to 5% or less for all herbicide treatments by 28 DAT. Control of common waterhemp for all herbicide combinations and application timings was 97 and 93% or greater on glyphosate-susceptible populations at 14 and 28 DAT, respectively. Control of glyphosate-resistant common waterhemp at 14 DAT was greater with full and half rates of lactofen and fomesafen combined with glyphosate than all other postemergence herbicide tank-mixtures with glyphosate. However, control of glyphosate-resistant waterhemp was still less than 90% for the combinations of lactofen and fomesafen with glyphosate. The response of other weed species to the addition of a tank-mixture with glyphosate was variable and species dependent.