

TANK MIXES WITH GLYPHOSATE FOR DIFFICULT TO CONTROL WEEDS IN SOYBEAN. Dawn Refsell, Bryan Young, and Gordon Roskamp, Extension Specialist, University of Illinois, Urbana, IL 61801, Professor, University of Southern Illinois, Carbondale, IL 62901, and Professor, Western Illinois University, Macomb, IL 61455.

The onset of glyphosate-resistant weed species is leaving growers with the question of how to manage these suspected resistant weeds. The incorporation of a preemergence herbicide and the use of tank-mixes are commonly noted at the top two ways to manage these weeds. Many times a quick remedy is also needed for a rescue treatment to control weeds which have escaped earlier weed management tactics. Field Studies were conducted in 2008 at seven locations throughout Illinois to determine the effectiveness of herbicides tank-mixed with glyphosate for control of common waterhemp (*Amaranthus rudis*), morningglory (*Ipomea* spp.), giant ragweed (*Ambrosia trifida*), and common lambsquarters (*Chenopodium album*) in soybean (*Glycine max*). These tank mixes were applied at early postemergence and late postemergence and at full and reduced rates and were compared with four glyphosate alone combinations and a preemergence followed by postemergence treatment. Soybean injury was evaluated 7 and 14 DAT, weed control was evaluated at 14, 28, and 56 DAT, and yield was collected at all but one location at the end of the season.

The Desota, IL location contained suspected glyphosate-resistant common waterhemp and was evaluated separately from the other trials. Only nine late postemergence treatments were evaluated and soybean injury was observed. Soybean injury 7 and 14 DAT was the greatest at 12 and 15%, respectively for the glyphosate+lactofen (high rate) treatment. 10% soybean injury was also observed in the glyphosate+lactofen (low rate) and the glyphosate+fomesafen (high rate) treatments 7 and 14 DAT. Glyphosate-resistant common waterhemp control 14 DAT ranged from 0 to 60%. Only three treatments provided greater than 50% 14 DAT and these being the glyphosate+lactofen (high and low rates) and glyphosate+fomesafen (high rate). Control of glyphosate-resistant common waterhemp 28 DAT was not greater than 52% for any treatment. Yield was not recorded at this location due to lack of weed control.

Common waterhemp control was evaluated at five other locations, morningglory over four locations, giant ragweed over three locations, and common lambsquarters at one location. Control of common waterhemp 14DAT did not differ significantly; however, at 28 DAT three of the twenty-nine treatments had reduced control (less than 85%). Control 56 DAT was greater than 85% for all but three treatments which included glyphosate alone (EPOST), glyphosate+imazethapyr (EPOST), and glyphosate+chlorimuron+thifensulfuron (EPOST). There were no differences in giant ragweed control regardless of rate and application timing at 7 and 14 DAT. Giant ragweed control was only 76% in the glyphosate+lactofen (LPOST) treatment 56 DAT, proving to be the only treatment with significantly less control. Morningglory control varied greatly 7 DAT with the highest level of control being 82%. Eleven tank-mix combinations provided greater than 81% control 14 DAT, with only one treatment with less than 80% control 56 DAT. Control of morningglory by glyphosate alone (EPOST) was significantly less at each evaluation timing. Common lambsquarters control ranged from 95 to 100% control for all treatments at 7 and 14 DAT (no evaluation at 56 DAT).

Soybean injury was the greatest regardless of application timing at rate for the glyphosate+lactofen treatment where soybean injury was as high as 25%. Injury was also observed at levels greater than 10% for the glyphosate+flumiclorac and glyphosate+fomesafen treatments at early postemergence timing. Soybean yield did not differ significantly by treatment except for the untreated control where yield was 1267 kg/ha. All other treatments yielded from 2840 to 3360 kg/ha.

