

INFLUENCE OF FALL AND SPRING HERBICIDE APPLICATIONS ON WINTER AND SUMMER ANNUAL WEED POPULATIONS IN NO-TILL SOYBEAN. Nicholas H. Monnig and Kevin W. Bradley, Graduate Research Assistant and Assistant Professor, Division of Plant Sciences, University of Missouri, Columbia, MO 65211.

Field experiments were conducted in the fall of 2004 through the summer of 2005 in central and northeast Missouri to evaluate the effects of fall and early spring herbicide applications on winter and summer annual weed populations. At each location, 0.023 kg/ha chlorimuron plus 0.12 kg/ha sulfentrazone plus 0.54 kg/ha 2, 4-D, 0.035 kg/ha chlorimuron plus 0.01 kg/ha tribenuron plus 0.54 kg/ha 2, 4-D, and 1.12 kg/ha glyphosate plus 0.54 kg/ha 2, 4-D were applied in the fall, 60, 30, and 7 days early preplant (EPP). At both locations, control of purslane speedwell (*Veronica peregrine* L.) at planting was greater than 80% with all herbicide treatments except glyphosate plus 2, 4-D in the fall. Glyphosate plus 2, 4-D applied 60 days EPP also provided significantly lower control of purslane speedwell at planting than the remaining treatments at the northeast location. Control of annual fleabane [*Erigeron annuus* (L.) Pers.] at the central location was greater than 93% with all treatments except those applied 7 day EPP. At this timing, all three herbicide treatments provided less than 77% annual fleabane control. At the northeast location, control of corn buttercup (*Ranunculus arvensis* L.) was greater than 80% with all treatments except chlorimuron plus tribenuron plus 2, 4-D applied 7 days EPP. Weed control ratings to evaluate summer annual weed control conducted four weeks after planting (WAP) at the central location revealed poor control of common waterhemp (*Amaranthus rudis* Sauer) with glyphosate plus 2, 4-D in the fall, 60, 30, and 7 days EPP, and also with chlorimuron plus tribenuron plus 2, 4-D in the fall, 60, and 30 days EPP. However, chlorimuron plus sulfentrazone plus 2, 4-D applied in the fall provided 68% control of common waterhemp 4 WAP, which was significantly better than either of the remaining fall herbicide treatments. All three spring applications of chlorimuron plus sulfentrazone plus 2, 4-D provided greater than 90% control of common waterhemp 4 WAP. Weed control ratings 4 WAP at this location correlated with emergence patterns of common waterhemp in response to each treatment. At the northeast location, control of giant foxtail (*Setaria faberi* Herrm.) was greater than 80% with all treatments except chlorimuron plus sulfentrazone plus 2, 4-D in the fall, and glyphosate plus 2, 4-D in the fall, 60, and 30 days EPP.