

INFLUENCE OF FALL AND SPRING HERBICIDE APPLICATIONS ON WINTER AND SUMMER ANNUAL WEED POPULATIONS IN NO-TILL CORN. 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 northwest Missouri to evaluate the effects of fall and early spring herbicide applications on winter and summer annual weed populations. At each location, 1.12 kg/ha simazine plus 0.54 kg/ha 2, 4-D, 0.013 kg/ha rimsulfuron plus 0.007 kg/ha thifensulfuron 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, 45, 30, and 7 days early preplant (EPP). At both locations, control of field pennycress (*Thlaspi arvense* L.) one week after planting (WAP) was greater than 80% for all treatments except glyphosate plus 2, 4-D applied in the fall. Control of henbit (*Lamium amplexicaule* L.) 1 WAP at the central location was greater than 90% for all treatments except simazine plus 2, 4-D applied 45 and 30 days EPP. At the northwest location, all fall treatments provided 99% control of henbit 1 WAP, while all spring treatments provided less than 80% control except glyphosate plus 2, 4-D applied 45 and 30 days EPP and simazine plus 2, 4-D applied 45 days EPP. Weed control ratings to evaluate summer annual weed control conducted 5 WAP at the central location revealed poor control of Pennsylvania smartweed (*Polygonum pensylvanicum* L.) from all treatments containing glyphosate plus 2, 4-D and fall treatments of simazine plus 2, 4-D and rimsulfuron plus thifensulfuron plus 2, 4-D. However, all spring treatments of simazine plus 2, 4-D and rimsulfuron plus thifensulfuron plus 2,4-D provided greater than 80% control of Pennsylvania smartweed. Control of giant foxtail (*Setaria faberi* Herrm.) 5 WAP at both locations was less than 80% with all fall treatments and spring treatments of glyphosate plus 2, 4-D at 45 and 30 days EPP. However, at the central location all other spring treatments provided greater than 80% giant foxtail control except rimsulfuron plus thifensulfuron plus 2, 4-D applied 30 days EPP. At the northwest location, all spring treatments containing glyphosate plus 2, 4-D provided less than 80% control of giant foxtail, as did simazine plus 2, 4-D applied 45 days EPP. Poor control of common waterhemp (*Amaranthus rudis* Sauer) at the northwest location was observed with all treatments 5 WAP. Summer annual weed emergence counts were also conducted at both locations beginning 1 WAP and continuing through 5 WAP.