

Weed Management in Corn—I

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Introduction

The purpose of this study was to evaluate two-pass and single-pass corn herbicide programs for crop phytotoxicity and weed control.

Materials and Methods

The crop rotation was corn following soybeans. The seedbed was prepared in the spring with a field cultivator. Crop residue was 12% at planting. A randomized complete block design with three replications was used. Herbicides were applied in 20 gallons of water/acre. Visual estimates of percentage crop injury and weed control were made during the growing season. These observations are compared with an untreated control and made on a zero to 100 rating scale (0% = no control or injury; 100% = complete control or crop kill).

‘Dekalb hybrid DKC 58-24’ corn was planted at 33,674 seeds/acre in 30-inch rows on May 20, and preemergence (PRE) treatments followed on May 23. Postemergence (POST) treatments and the sequential postemergence (SPOST) treatment were applied on June 19 and July 5, respectively. Corn growth stage was V4 and 7 inches tall on June 19, whereas on July 5 corn was V5-V6 and 13 inches tall. Weeds had cotyledon to numerous leaves and were 0.5–8 inches tall on June 19. On July 5 weeds had cotyledon to numerous leaves and were up to 5 inches tall. Weed species occurring in this study included: giant foxtail, velvetleaf, common waterhemp, common lambsquarters and Pennsylvania smartweed with an average population on June 19 of 10, 1, 2, 1, and 1 plant/ft², respectively.

Results and Discussion

Summarized in Tables 1, 2, and 3 are the data on corn injury, weed control, and yield as affected by herbicide treatment. There were no significant differences between treatments for corn stand. PRE corn treatments did not cause corn injury. Several POST treatments caused injury when observed on July 3, but it was not considered serious. No injury was apparent on July 29.

All PRE treatments provided at least 90% giant foxtail control on June 17. Control was at least 90% for all treatments at subsequent evaluation dates, with the exception of 88% control by Dual II Magnum on July 29. PRE Lumax provided 99% velvetleaf control on June 17. No other PRE treatments provided adequate velvetleaf control on June 17. POST Bicep Lite II Magnum with Steadfast and Celebrity Plus provided 92 and 93% velvetleaf control on July 3, respectively. All other treatments provided at least 95% control. All treatments provided at least 93% velvetleaf control on July 29. PRE Cinch ATZ Lite provided 88% common waterhemp control, and the remaining treatments provided at least 92% control on June 17. POST Option plus Hornet WDG demonstrated 78 and 68% common waterhemp control on July 3 and 29, respectively. The remaining treatments provided at least 90% control on those dates. PRE control of common lambsquarters and Pennsylvania smartweed was variable among treatments on June 17. All treatments provided at least 93% control on July 3 and 29. No significant differences in corn yield were observed between the treatments except when compared with the untreated check.