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Weed Management in Corn–II

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Abstract
The purpose of this study was to evaluate various herbicides combinations applied preemergence and postemergence in corn for crop phytotoxicity and weed control.

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Introduction

The purpose of this study was to evaluate various herbicides combinations applied preemergence and postemergence in corn 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 0.5–7 inches tall on June 19. On July 5 weeds had cotyledon to numerous leaves and were up to 2 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/ft^2, 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. No significant differences in corn stand between herbicide treatments were observed. PRE treatments did not cause injury when observed on June 17. Observations on July 3 demonstrated that POST Hornet WDG plus Steadfast caused 8% injury. All other treatments caused less than 5% injury.

All PRE treatments provided at least 96% giant foxtail control on June 17 as did all remaining treatments on July 3 and July 29. PRE Balance Pro and FulTime demonstrated at least 95% velvetleaf control on June 17. Other PRE treatments provided 85% velvetleaf control, or less. PRE Outlook and Surpass did not provide adequate common lambsquarters control on June 17. All PRE treatments provided excellent common waterhemp control. All treatments provided excellent overall weed control on July 3 and 29.

PRE FulTime plus Hornet WDG yielded significantly more corn than PRE Balance Pro plus Atrazine followed by POST Option, POST Prowl H_20 plus Roundup, Steadfast plus Callisto plus Atrazine, and PRE Harness Xtra followed by POST Permit. There were no other significant differences between treatments except when compared with the untreated check.