

No-tillage Corn Weed Management

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Introduction

The purpose of this study was to evaluate herbicide combinations for weed efficacy and corn phytotoxicity in no-tillage production systems.

Materials and Methods

The crop rotation was corn following soybean. Crop residue was 95–100% at planting. Fertilization included 100 lb/A actual N applied as 28% urea ammonium nitrate dribble banded. A randomized complete block design with three replications was used. Herbicides were applied in 20 gal. water/acre. Visual estimates of crop injury and percentage of weed control were made during the growing season. These observations were compared with an untreated control, rated on a 0–100% scale (0% = no control or injury; 100% = complete control or crop kill).

Cargill hybrid 5212 corn was planted on April 30, 2001 at 32,000 seeds/acre in 30-inch rows. Preemergence (PRE) treatments followed. Weed growth stage on April 30 was: giant foxtail 1–2 leaf, 0.25–0.5 inch tall; common lambsquarters, common waterhemp, giant ragweed, and velvetleaf were cotyledon to numerous leaves, 0.25–2 inches tall; and horseweed—numerous leaves, 2–3 inches tall.

Average weed populations occurring in this study included: giant foxtail, common lambsquarters, common waterhemp, giant ragweed, horseweed, and velvetleaf having populations of 4, 2, 1, 3, 1 and 1 plants/ft², respectively.

Results and Discussion

Summarized in tables 1 and 2 are the results of this study. There were no significant differences in corn stand, excluding the untreated check. No corn injury was observed on May 17. Minimal injury was noted on May 29. All treatments demonstrated excellent weed control on May 29. However, on July 5, giant foxtail control began to break. Degree Xtra provided 87% control. Giant foxtail control for all other treatments fell to 77% or less. Velvetleaf control was 91–93% for Harness Xtra, Degree Xtra, and Bicep II Magnum, respectively. Other treatments provided at least 95% control of velvetleaf. All treatments provided at least 95% control of common lambsquarters. Control of common waterhemp and giant ragweed was excellent for all treatments. There were no significant differences between treatments for corn yield, excluding the untreated check. Yields ranged from 138–157 bushels/acre.