

Weed Management in Corn

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Introduction

The purpose of this study was to evaluate pre-emergence and post-emergence applied herbicides for crop phytotoxicity and weed control on a glufosinate-resistant corn hybrid.

Materials and Methods

The crop rotation was soybean following corn. The seedbed was prepared with a spring field cultivation. Crop residue was 11% at planting. Fertilization included 130 lb/A actual N applied as 28% N. A randomized complete block design with three replications was used. Herbicides were applied in 20 gallons of water/acre. Visual estimates of crop injury and percentage weed control were made during the growing season. These estimates were compared with estimates on an untreated control and recorded on a 0–100 rating scale (0% = no control or injury; 100% = complete control or crop kill).

‘Pioneer hybrid 33P69 LL’ corn was planted on May 14, and pre-emergence (PRE) treatments followed. Early post-emergence (EPOST) and post-emergence (POST) treatments were applied June 11 and 19, respectively. On June 11, corn was V4 and 3–4 inches tall and on June 19, V5–6 and 6–9 inches tall.

Weed growth stage on June 11 was: giant foxtail—1 leaf and 1 inch tall; common lambsquarters, common waterhemp, Pennsylvania smartweed, and velvetleaf—cotyledon—numerous leaves and 0.25–1.5 inches tall. On June 19, weed growth was: giant foxtail—2–4 leaves and 0.25–3

inches tall; common lambsquarters, common waterhemp, Pennsylvania smartweed, and velvetleaf—numerous leaves and 0.25–3.5 inches tall. Average weed populations occurring in this study included giant foxtail, common lambsquarters, common waterhemp, Pennsylvania smartweed, and velvetleaf, with respective populations of 1, 2, 3, 2 and 1 plants/ft².

Results and Discussion

The results of this study are summarized in Table 1 and Table 2. Significant differences in corn stand between treatments were due to variability in emergence, not to herbicides. As observed June 19 and 27, and July 19, several EPOST and POST applied treatments caused injury to corn; but, injury ranged from 2–7% and was not considered serious. Overall, weed pressure was light in the experiment area. On June 19, excellent control of giant foxtail, velvetleaf, and common waterhemp was observed from all PRE and PRE plus EPOST treatments. Also on June 19, it was observed that several PRE treatments alone, made before application of sequential POST treatments, failed to adequately control velvetleaf, common lambsquarters, and Pennsylvania smartweed. However, by observations made July 19 and August 21, following POST applications, all treatments provided excellent control of all species evaluated.