

Weed Management in Soybean

Micheal D. K. Owen, professor
James F. Lux, ag specialist
Damian D. Franzenburg, ag specialist
Department of Agronomy

Introduction

The purpose of this study was to evaluate various herbicides and application timings for crop phytotoxicity, weed control, and yield in soybean.

Materials and Methods

The crop rotation was soybean following corn. The seedbed was prepared before planting with a field cultivator. Crop residue was 85% at planting. A completely randomized block design with three replications was used. Herbicides were applied in 20 gal of water/acre. Visual estimates of crop injury and percentage 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).

Preplant (PPI) treatments were applied on May 7 and incorporated in one pass with a field cultivator operating 1–2 in. deep. Crow's variety C 2130 R soybean was planted at 189,417 seeds/acre in 30-in. rows on May 17. Preemergence (PRE) treatments followed. Postemergence (EPOST, POST, and SPOST) treatments were applied on June 17, July 1, and July 28, respectively. Soybean growth was V2 to V3 and 8 in. tall, R1 and 15 in. tall, and R3 to R4 and 30 in. tall on June 17, July 1, and July 28, respectively. Weeds had cotyledon to numerous leaves and were 0.5–4 in. tall, numerous leaves and 0.5–14 in. tall, and numerous leaves and 4–14 in. tall on June 17, July 1, and July 28, respectively. Weed species occurring in this study included giant foxtail,

velvetleaf, common waterhemp, common lamb's quarters, and Pennsylvania smartweed with an average population of <1 to 1 plant/ft².

Results and Discussion

Summarized in Tables 1, 2, and 3 are the results of the study. Negligible soybean injury was observed from some PPI and PRE treatments on June 10. Good to excellent giant foxtail and common waterhemp control was provided by PPI and PRE treatments on June 10. Velvetleaf, common lamb's quarters, and Pennsylvania smartweed control was good to excellent with PPI Pursuit Plus, PRE Domain, Gangster, and Boundary (3.0 pt/acre). All other treatments provided poor to fair velvetleaf and fair to good common lamb's quarters and Pennsylvania smartweed control. Serious soybean injury was observed from EPOST-applied Raptor plus Ultra Blazer, Phoenix plus Select, Extreme, Phoenix, and Flexstar plus Fusion treatments when observed on July 20, 19 days after application. Other EPOST and POST treatments resulted in less serious injury. On August 8, injury persisted with a number of the above-mentioned EPOST treatments. Good to excellent giant foxtail, velvetleaf, common waterhemp, common lamb's quarters, and Pennsylvania smartweed control was observed on July 20 and August 4. Exceptions were EPOST Phoenix plus Select and Phoenix for Pennsylvania smartweed control and PRE Boundary, alone, for common lamb's quarters and Pennsylvania smartweed control. Treated soybean yields ranged from 36 to 59 bushels/acre. Serious soybean injury was observed from several treatments including EPOST Raptor plus Ultra Blazer, which yielded significantly less than nearly all other treatments.