

Pre-emergence and Post-emergence Applied Herbicides for 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 herbicide treatments applied pre-emergence and post-emergence for weed efficacy and crop phytotoxicity in a glyphosate-resistant soybean variety.

Materials and Methods

The crop rotation was soybean following corn. The seedbed was prepared by a spring field cultivation. Crop residue was 15–18% at planting. 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 observations are compared with an untreated control and rated on a 0–100% scale (0% = no control or injury; 100% = complete control or crop kill).

‘Cargill variety B335 RR’ soybean was planted on April 30, 2001, at 178,000 seeds/acre in 30-inch rows. Pre-emergence (PRE) treatments followed. Post-emergence (POST1, POST2, POST3) treatments were applied on May 29, June 21, and July 5, respectively. Soybean was 1 trifoliolate and 4 inches tall on May 29, 4 trifoliolate and 6 inches on June 21, and R1 and 15 inches on July 5. Weed growth stage was 1–numerous leaves and 0.25–2 inches tall on May 29, 0.25–10 inches on June 21, and 0.5–12 inches on July 5. Weed species occurring in this study included giant foxtail, common lambsquarters, common waterhemp, Pennsylvania smartweed, and velvetleaf, with an average population of 25, 1, 1, 1 and 1 plants/ft², respectively.

Results and Discussion

The results of the study are summarized in tables 1, 2 and 3. No soybean injury was observed on May 17. PRE Authority demonstrated 12% injury on May 29. On June 8, POST1 Ultra Blazer plus either Pursuit or Raptor, Fusion plus Flexstar, and Synchrony STS plus Flexstar plus Assure II demonstrated 28% injury. POST1 Extreme and Pursuit demonstrated 17% and POST1 Roundup UltraMAX showed 8% injury. POST1 treatments containing Ultra Blazer plus either Pursuit or Raptor, and Synchrony STS plus Flexstar maintained at least 10% injury by July 5; but injury was insignificant by August 9.

PRE Boundary provided excellent giant foxtail control on May 29. PRE Domain treatments at 16.0 oz/A provided 80% control. The remaining PRE treatments provided marginal giant foxtail control. Common lambsquarters, Pennsylvania smartweed, and giant ragweed control (data not shown) was excellent for all PRE treatments on May 29. Similar trends in weed control were observed on June 21, with the exception of breaking control of common waterhemp by PRE Prowl. Observed giant foxtail control became marginal on July 5 and August 9 for POST1 Raptor plus Ultra Blazer, Fusion plus Flexstar, and Synchrony STS plus Flexstar plus Assure II. Broadleaf control was good or excellent for all treatments by August 9. There were no significant yield differences; however, lower yields tended to coincide with marginal giant foxtail control.