

Weed Management Strategies 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 pre-emergence and post-emergence applied herbicides for weed efficacy and crop phytotoxicity in a glyphosate-resistant soybean variety.

Materials and Methods

Crop rotation was soybean following corn. The seedbed was prepared by 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 were compared with an untreated control and rated on a 0–100% rating scale (0% = no control or injury; 100% = complete control or crop kill).

‘Cargill 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 trifoliate and 2.5 inches tall on May 29, 4 trifoliate and 6 inches on June 21, and R1 and 10–12 inches on July 5. Weed growth stage was 1–numerous leaves and 0.25–4 inches tall on May 29, 0.5–to 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 respectively, of 25, 1, 2, 2 and 1 plants/ft².

Results and Discussion

The results of this study are summarized in tables 1, 2, and 3. Soybean injury was noted on May 29 for some PRE treatments. Authority at 12.0 oz/A plus Command demonstrated injury of 22%; injury from other treatments containing Authority plus either FirstRate or Command ranged from 12–17%. PRE Valor, alone or in combination with either Sencor or Python, caused 10–12% injury. Injury was still detectable for Authority treatments at the July 5 rating. POST1 FirstRate plus Flexstar plus Select demonstrated 23% and 10% injury on June 8 and 21, respectively.

PRE FirstRate plus either Python or Authority and PRE Pendimax demonstrated marginal control of giant foxtail on May 29. Broadleaf control by these treatments, and overall weed control by the other PRE treatments, was good to excellent. Giant foxtail control broke for PRE Valor treatments on June 21. On August 9, treatments without a POST timing and POST1 Flexstar plus Select, and Poast Plus did not provide acceptable giant foxtail control. Common lambsquarters control for POST1 FirstRate plus Flexstar plus Select was unacceptable. Overall, as observed August 9, weed control by all other treatments was otherwise good to excellent. Soybean yields generally were lower when control of giant foxtail was inadequate.