

2009

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Recommended Citation

Owen, Michael D.; Lux, James F.; Franzenburg, Damian D.; and Grossnickle, Dean M., "Weed Management Strategies in Liberty Link, Roundup Ready, and Conventional Soybean Varieties" (2009). *Iowa State Research Farm Progress Reports*. 577.
http://lib.dr.iastate.edu/farms_reports/577

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Abstract

The purpose of this study was to evaluate various herbicides and application timings for injury and weed control in Liberty Link, Roundup Ready, and conventional soybean varieties.

Keywords

Agronomy

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences

Weed Management Strategies in Liberty Link, Roundup Ready, and Conventional Soybean Varieties

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Introduction

The purpose of this study was to evaluate various herbicides and application timings for injury and weed control in Liberty Link, Roundup Ready, and conventional soybean varieties.

Materials and Methods

The study was established using a randomized complete block design with four replications. Herbicides were applied in 20 gallons of water/acre. The crop rotation was soybean following corn. The pre-plant seedbed was prepared with a tandem disk.

Soybeans were planted at 150,000 seeds/acre in 30-in. rows on May 19. Preemergence (PRE) treatments were applied on May 22. Early postemergence (EPOST), mid-postemergence (MPOST), and late postemergence (LPOST) treatments were applied on June 27, July 9, and 18, respectively. Soybean growth was V3, V5 to V6, and R2 on June 27, July 9, and 18, respectively. Weeds were generally 0.25 to 3 in. tall, 0.25 to 8 in. tall, and 0.25 to 18 in. tall, on June 27, July 9, and 18, respectively. Weed species in the study included giant foxtail, velvetleaf, common waterhemp, and common lambsquarters averaging a population of < 1 plant/ft².

Visual estimates of crop injury and percentage weed control were made during the growing season. These observations were compared with an untreated control and made on a 0 to

100 rating scale (0 percent = no control or injury; 100 percent = complete control or crop kill). Herbicide treatment soybean yields were measured and adjusted to 13 percent moisture.

Results and Discussion

Summarized in Tables 1, 2, and 3 are the results of the study. PRE Prowl H2O at 3/4 labeled rate provided 94–99 percent giant foxtail, common waterhemp, and common lambsquarters control and 53–59 percent velvetleaf control when observed prior to postemergence applications (data not shown). Soybean injury from postemergence treatments of Ignite 280 and Roundup PowerMAX did not exceed 5 percent on any observation date (Table 1, 2). EPOST Ultra Blazer and Basagran and Poast Plus caused 76 percent and 41 percent soybean injury when observed on July 9 and 28, respectively.

When observed on July 18, 91–99 percent giant foxtail, common waterhemp, and common lambsquarters control and 81–93 percent velvetleaf control was provided by PRE Prowl H2O plus EPOST Ignite 280 and EPOST Ignite 280 alone (Table 1). PRE Prowl H2O plus EPOST Roundup PowerMAX and EPOST Roundup PowerMAX alone, provided 97–99 percent overall weed control on July 18. EPOST Ultra Blazer and Basagran and Poast Plus provided 95–99 percent overall weed control.

PRE Prowl H2O plus MPOST Ignite 280 and MPOST Ignite 280 alone, provided 89–99 percent giant foxtail, common waterhemp, and common lambsquarters control and 85–90 percent velvetleaf control when observed on July 28 and August 22 (Tables 2 and 3). Overall weed control on July 28 and August 22 ranged from

97–99 percent for PRE Prowl H2O plus MPOST Roundup PowerMAX and MPOST Roundup PowerMAX alone.

EPOST Ultra Blazer and Basagran and Poast Plus provided 89–99 percent overall weed control on July 18 and August 22.

On August 22, LPOST Ignite 280 and Roundup PowerMAX following PRE or an EPOST treatment provided 98–99 percent overall weed control (Table 3). EPOST Ignite 280 alone gave 88–99 percent giant foxtail, common waterhemp, and common lambsquarters control and 79 percent velvetleaf control. EPOST Roundup PowerMAX alone gave 96–99 percent overall weed control. Giant foxtail, common waterhemp, and common lambsquarters control for MPOST Ignite 280 following PRE Prowl H2O and MPOST Ignite 280 alone, ranged from 89–99 percent. Velvetleaf control with the same treatments ranged from 85–90 percent. Overall weed control with MPOST Roundup PowerMAX following PRE Prowl H2O and MPOST Roundup PowerMAX alone was 98–99 percent.

There were no significant yield differences between Ignite 280 treatments with differing application timings. EPOST Roundup PowerMAX yielded significantly less than PRE Prowl H2O plus MPOST Roundup PowerMAX and MPOST Roundup PowerMAX with 45, 52, and 54 bushels/acre, respectively. EPOST plus LPOST Roundup PowerMAX and PRE Prowl H2O plus EPOST plus LPOST Roundup PowerMAX, each with 47 bushels/acre, also yielded significantly less than MPOST Roundup PowerMAX. These yield differences were not necessarily due to weed control because weed pressure was light and variable. The conventional herbicide treatment yield was 28 bushels/acre and was negatively affected by the severe soybean injury that was observed.