

No-Tillage Weed Control

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Introduction

The purpose of this study was to evaluate burndown and residual weed control with herbicides applied in no-tillage conditions.

Materials and Methods

A randomized complete block design with three replications was used. The study area was left unplanted. Herbicides were applied in 20 gallons of water/acre. Visual estimates of percentage weed control were made three times following herbicide application. These observations are compared with an untreated control and made on a zero to 100 rating scale (0% = no control; 100% = complete control).

Herbicide treatments were applied on May 14. Weed growth at application timing included: giant foxtail, 1 to 3 leaves and 0.5 to 1 inch tall; common lambsquarters, 4 to 6 leaves and 1 to 3 inches tall; horseweed, numerous leaves and 3 to 4 inches tall; Pennsylvania smartweed, 2 to 6 leaves and 0.5 to 3 inches tall; common dandelion, numerous leaves and 5 to 6 inches tall; field pennycress, numerous leaves and 1 to 10 inches tall. Weed infestations were considered light to very light overall.

Results and Discussion

Summarized in Tables 1–4 are data on percentage weed control achieved by the various herbicide treatments. Early burndown control of giant foxtail on May 23, nine days after application, was good to excellent with all pre-plant (PRE) treatments (Table 1). Treatments containing Weedone LV4 plus Balance Pro, Balance Pro

plus Atrazine, and Balance Pro plus Sencor achieved good to excellent common lambsquarters, horseweed and Pennsylvania smartweed control. An exception to these was Balance Pro applied at 1.5 fl oz/acre plus Sencor at 2.0 oz wt/acre for horseweed control. Overall, the remaining treatments gave poor to fair common lambsquarters, horseweed, and Pennsylvania smartweed control. Common dandelion control was poor with most treatments, whereas most provided good field pennycress control. Generally, giant foxtail, common lambsquarters, horseweed, Pennsylvania smartweed, and field pennycress control was good to excellent with the treatments on June 9, 26 days after application (Table 2). Roundup WeatherMAX applied without a residual herbicide provided fair giant foxtail control. Common dandelion control improved to good to excellent with many of the treatments on June 9, compared with May 23.

PRE applications of Aim in combination with Weedone LV4 and Bicep II Magnum, Guardsman MAX, Harness Xtra, or Roundup WeatherMAX provided 99% early burndown of giant foxtail, common lambsquarters, and Pennsylvania smartweed when observed on May 23, nine days after application (Table 3). Treatments without Aim achieved 45–99% control of these species. Common dandelion control ranged from 82–92% with treatments containing Aim, whereas, treatments without Aim provided 47–62% control. On June 9, all treatments provided good to excellent giant foxtail, common lambsquarters, and Pennsylvania smartweed control, with the exception of Roundup WeatherMAX for Pennsylvania smartweed control (Table 4). Common dandelion control was mostly unacceptable with all of the treatments.