

Evaluation of Pre/Post compared to Very Early POST Corn Herbicide Programs in Field Corn at Rochester, MN in 2017

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The objective of this trial was to evaluate pre emergence herbicide programs in field corn in southeastern Minnesota. The research site was a loamy sand series with a pH of 6.4, O.M. of 2.1%, and soil test P and K levels of 35 ppm and 245 ppm, respectively. Fall fertilizer was broadcast on November 3, 2016 at a rate of 0-46-180-0 lbs/A. Fertilizer was also applied in the spring, ahead of a planting, on April 19, 2017 at a rate of 127-13-30-24 (N-P-K-S) lbs/A. Additional nitrogen was applied on June 12 (~60 lbs/A). The field was disked and field cultivated once prior to planting. The previous crop was soybean. The corn hybrid, DEKALB DKC47-27RIB, was planted May 4, 2017 at a depth of 1.5 inches in 30-inch rows at a rate of 32,000 seeds per acre. A randomized complete block design was used with four replications. Preemergence (PRE) and postemergence (POST) treatments were applied with a tractor-mounted sprayer delivering 15 gpa at 30 psi using TTI-11002 tips. Evaluations of the plots were taken May 21, May 30, June 5, June 13, and October 26. The center two rows of each plot were machine harvested on November 6, 2017. Application dates, environmental conditions and weed stages can be found in Table 1. Performance ratings for giant ragweed, common lambsquarters, common waterhemp and grass control can be found in Tables 2 through 5 respectively. (University of Minnesota Extension Regional Office, Rochester.)

DISCUSSION

The herbicide systems evaluated at this location demonstrate the need for effective giant ragweed control to achieve satisfactory corn yields. Giant ragweed control was marginal at the beginning of the growing season for the PRE treatments. Activation rates varied by product and once rainfall was received and temperatures warmed, control improved for several PRE herbicides. For example, giant ragweed control with Corvus at 5.6 fl oz was only 38% on May 21, but increased to 60% by May 30 and 88% by June 13, Table 1. Only a few systems achieved over 90% control in this trial, and those systems achieved the top yields in this trial.

Control of common lambsquarters, common waterhemp, and grass were excellent with all treatments except treatment 12, Roundup plus Aatrex, which averaged only 50% control of common waterhemp throughout the season, Table 4.

Very early POST treatments applied on May 15, or 10 days after planting, provided good to excellent control of giant ragweed. (University of Minnesota Extension Regional Office, Rochester.)

Table 1. Application timing, plant stage, environmental conditions.

Date	5/5	5/15	5/25
Treatment	PRE (A)	POST I (B)	POST II (C)
Temperature (F)			
Air	63	73	65
Soil	55.0	68.5	64.8
Relative Humidity (%)	35	55	67
Wind (mph)	7	12	13
Soil Moisture	Normal	Normal	Slightly Wet
Corn			
Stage		1-collar	2-collar
Height (in)		2.0	3.0
Giant Ragweed			
Weed Density (ft ²)		21	26
Height (in)	0.0	0.8	2.0
Common Waterhemp			
Weed Density (ft ²)			14
Height (in)	0.0	0.1	0.5
Common Lambsquarter			
Weed Density (ft ²)			18
Height (in)	0.0	0.3	1.0
Grass			
Weed Density (ft ²)			4
Height (in)	0.0	0.2	0.6
Rainfall after each application (inch)			
Week 1	0.16	1.98	0.10
Week 2	1.98	1.17	0.08
Week 3	1.17	0.18	1.07

