WEED CONTROL IN SWEET CORN

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Purpose

Preplant incorporated herbicides alone and in tank-mixes were tested for annual grass and broadleaf weed control in sweet corn.

Procedures

The herbicides evaluated in this study were Axiom 68 WG alone and in mixtures with either Atrex 4L or Bladex 4L, and, for comparison, treatments of Frontier 7.5 SL and Dual 8E. The plot area was in a field that had been in winter wheat the previous year. Following the 1995 harvest the field was plowed and cultivated, and fertilizer was broadcast at 100 lb P and 20 lb N per acre. The soil was Greenleaf silt loam with an organic matter content of 1.5 percent and a pH of 7.6. The field was planted again to winter wheat and corrugated. In May the emerged winter wheat was killed with Roundup and the existing beds were used.

On May 25, a mixture of weed seeds from mill screenings was broadcast uniformly with a hand-cranked spreader over the 32 plots (8 treatments x 4 replications) each of which was 10 by 30 ft. A mixture of weed seeds from mill screenings was broadcast uniformly with a hand-cranked spreader. Herbicide treatments were applied with a hand sprayer with a four nozzle boom with 8003 flat fan tips spaced 30 inch and operated at 40 psi. Treatments were applied in a water carrier at 20 gallons per acre. Herbicide treatments and weed seed were immediately incorporated into the surface 2 in of the beds by harrowing in two directions with a spike-toothed bed harrow.

On May 26, Golden Jubilee sweet corn was planted approximately 2 in deep into moist soil. Seeding rate was 30,000 seeds per acre, or 1.7 seeds per foot of row, in rows spaced 30 in apart. Rainfall from May 12 to 18 totaled 2.33 in at the site, with another 0.02 in of rain on May 29. The average daily high temperature for the period May 26 to June 3 was 76 ^{0}F. Corn had emerged uniformly by June 3, and corn plants were visually evaluated for herbicide tolerance on June 12. The field was furrow irrigated from gated pipe to maintain adequate moisture for the corn. Herbicide effectiveness was evaluated visually on June 27 . The hand-weeded check plots were weeded to provide 100 percent weed control, and the untreated check plots for each replicate represented zero weed control for that replicate. On July 12, Urea fertilizer at 100 lb N per acre was applied dissolved in the irrigation water.

The comparative effectiveness of the treatments to control weeds was evaluated using ANOVA and the protected least significant difference test at the 5 percent level LSD (0.05).

Results

One plot treated with Axiom + Atrex showed slight chlorosis on the corn when the plots were evaluated on June 12, but other than that, there were no treatments showing any symptom of phytotoxicity. Percent control was visually estimated and recorded for each weed species found in each plot (Table 1).

Herbicide treatments providing the highest percent control of redroot pigweed were Axiom + Atrex, Axiom + Bladex, and Frontier. Herbicide treatments resulting in the highest percentage control of barnyardgrass were Axiom + Atrex, Axiom + Bladex, and Dual. Yellow foxtail control was adequate with all treatments. Populations of common mallow and lambsquarters were too sporadic to detect differences in control between any of the herbicide treatments. The results suggest that Axiom, when used in combination with another herbicide, can control annual grasses and redroot pigweed, lambsquarters, and common mallow in sweet corn.

Table 1. Weed control results from preplant incorporated herbicide treatments on Golden Jubilee sweet corn. Malheur Experiment Station, Oregon State University, Ontario, Oregon, 1996.

Treatment	Herbicide rate	Redroot pigweed	Barnyard-grass	Yellow foxtail	Lambs-quarters	Common mallow
	lb ai/acre	----------percent control----------				
Hand-weeded Check	-	100	100	100	100	100
Axiom 68WG + Atrex 4L	0.85 + 1.5	98	99	98	100	99
Axiom 68WG + Bladex 4L	0.85 + 3.0	95	100	100	100	97
Axiom 68WG	0.85	87	98	99	87	100
Axiom 68WG	0.94	88	98	98	88	70
Frontier 7.5SL	1.5	97	98	99	87	72
Dual 8E	3.0	88	99	99	90	68
Untreated check	-	0	0	0	0	0
LSD (0.05)		7.3	1.6	2	19	33