

PROWL HERBICIDE IN ALFALFA AND RED CLOVER SEED PRODUCTION

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Purpose

Prowl herbicide is not currently registered for use in alfalfa and red clover seed production. Two rates of Prowl herbicide, as early incorporated, late broadcast, or banded treatments, were evaluated for weed control, crop tolerance, and seed yield in red clover and alfalfa seed production.

Methods

The study was conducted on established red clover at two locations (Allen Bennett Farm, Adrian, OR, NW1/4 sec. 24 T21S R46E, and Wong Brothers Farm, Roswell, ID, SW1/4 sec. 22 T5N R5W), and on alfalfa at one location (Brent Ishida Farm, Adrian, OR, SW1/4 sec. 23 T21S R46E). At all three locations the treatments and incorporation methods were the same. Treatments were Prowl at 2 or 4 lb ai/acre applied early and incorporated, Prowl at 2 or 4 lb ai/acre applied late as a broadcast spray, and Prowl at 2 or 4 lb ai/acre applied late and banded between the rows of crop plants. The early treatments were applied to the red clover April 4 and 5, 1996, when the crop was 4 to 5 inches tall, and to the alfalfa April 6, when the crop was 5 to 6 inches tall. Early herbicide treatments were incorporated 2 inches deep with one pass with a Triple K immediately after application. Late broadcast and late banded treatments were applied May 8 and 14 on red clover when the clover was 10 to 12 inches tall, and May 8 on alfalfa when the alfalfa was 8 to 12 inches tall.

Treatments were evaluated for crop height, phytotoxicity, flowering, and weed control on May 24, June 12, and July 1 for alfalfa, and May 24 and 29, June 12, and July 2 for red clover. The handweeded check plots in each study had not been weeded when the weed counts were done. The alfalfa seed was harvested September 5, and one of the red clover locations (Bennett) was harvested for seed yield September 31.

Results

Prowl herbicide is not currently registered for use in alfalfa and red clover seed production. Results of the Prowl applications on red clover grown for seed are given in Table 1. Data from both locations are combined in Table 1, but each column gives the result observed for that variable at a single location. The only plant characteristics influenced by any Prowl treatment was clover height on June 12 at one location. The evaluation for that date indicated slightly shorter clover in the early incorporated Prowl

at 2 lb and the late broadcast Prowl at 4 lb. The late broadcast treatments also caused clover leaf yellowing in May. There were no significant differences in crop height after June first.

The results of the Prowl applications on alfalfa for seed are presented in Table 2. Small differences in alfalfa height on the 5/24 evaluation date with the late broadcast and banded Prowl application had disappeared by the next evaluation date, 6/12. Differences in alfalfa height on 7/1 do not appear to be related to Prowl application because there is also a difference between the untreated and handweeded check treatments. Annual sowthistle control was better with the late broadcast and banded Prowl treatments. Marsh elder and prickly lettuce populations were too sporadic to detect control differences in this trial. Seed yield was not significantly different with any treatment, indicating good crop tolerance of the herbicide Prowl.

Table 1. Prowl herbicide effects in clover grown for seed near Roswell, ID, and Adrian OR, 1996. Oregon State University Malheur Experiment Station, Ontario, OR 1996.

			Roswell				Adrian							
Treatment	Rate	Application timing and method	Clover height 5/24	Flowers 5/24	Prickly lettuce 5/24	Clover height 6/12	Clover height 5/29	Flowers 5/29	Prickly lettuce 5/29	Clover height 6/12	Clover height 7/2	Prickly lettuce 7/2	Mustard 7/2	Clover seed yield 9/31
			inch	per 20 ft		inch	inch	per 20 ft		inch		per 20 ft		lb/acre
Handweeded	-		12.8	9.3	4.5	26.8	14.3	29.5	2.3	23.3	24.8	7.5	7.5	699
Prowl	2	Early incorporated	12.5	6.3	5.3	24.8	13.9	23.8	0.3	21.8	26	2.3	2.3	770
Prowl	4	Early incorporated	12.7	6.3	5	27	13.2	195.5	0.5	21	26.2	1.5	1.5	740
Prowl	2	Late broadcast	13.3	6.5	6.3	25.8	13.5	30.8	2.3	21.5	25.8	3.3	3.3	719
Prowl	4	Late broadcast	12.2	5.8	5	25	12.9	29	0.3	21	24.5	0.8	0.8	718
Prowl	4	Late banded	12.6	8.3	5.3	26.3	14.1	24.5	1.3	23.5	23.9	2.5	2.5	719
Untreated	-		12.7	11.5	14	27.3	14.7	26.8	2.5	23.3	23.8	4.5	4.5	690

Table 2. Prowl herbicide effects in alfalfa grown for seed near Adrian, Oregon, 1996. Oregon State University Malheur Experiment Station, Ontario, OR, 1996.

Treatment	Rate	Application timing and method	Alfalfa height 5/24	Alfalfa height 6/12	Alfalfa height 7/1	Annual sowthistle 5/24	Annual sowthistle 7/1	Marsh elder 7/1	Prickly lettuce 7/1	Alfalfa seed yield
		lb ai/acre	—inch—			—plants per 20 ft of row—				lb/acre
Handweeded	-		13.2	25.6	26	52	43	8.8	1	480
Prowl	2	Early incorporated	14.4	28.5	25.8	35	21	2.5	3.5	575
Prowl	4	Early incorporated	13.8	26.3	26.7	17	23	6.8	2.3	609
Prowl	2	Late broadcast	12.9	25.8	23.5	10	1	7.3	0.3	510
Prowl	4	Late broadcast	11.8	24.8	22.7	12	7	6.3	0.5	546
Prowl	4	Late banded	14.5	26	24.5	16	8	5.3	0.3	689
Untreated Check	-		13.2	27	23.1	27	43	5.8	0.8	555
LSD (0.05)			1.3	ns	3.1	27	17	ns	ns	ns