

## **Early Season Weed Control in a New Seeding of Conventional Alfalfa at Scottsbluff, NE during the 2007 Growing Season.**

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A field study was initiated near Scottsbluff, Nebraska to compare the effectiveness of various herbicides for selective weed control in alfalfa. The experimental design was a randomized complete block with three replications. Plots were 11 feet wide by 25 feet long and were located on a sandy loam with pH of 8.2 and organic matter of 0.8%. The plot area was rototilled and then packed in early April and 'Rebound' alfalfa was planted on April 20, 2007. Herbicide was applied preplant incorporated on April 20 and postemergence on May 21 when alfalfa was in the second trifoliolate growth stage. Herbicides were applied with a tractor-mounted sprayer calibrated to deliver 20 gallons of water per acre at 32-psi pressure with Spraying Systems 11002 VS nozzles. Environmental conditions and weed growth stages at the time of herbicide application are given in Table 1.

Visual alfalfa injury was evaluated on May 15, May 31, and June 11 (Table 2). Prowl H<sub>2</sub>O applied preplant incorporated caused 63% crop injury which resulted in a 27% reduction in alfalfa stand when compared to the nontreated. Raptor plus Buctril applied postemergence caused minor crop injury 10 days after treatment (DAT) but by 20 DAT alfalfa had recovered.

Weed density averaged 83, 7, 11, 34, 4, 13, and 6 plants/sq yd for common lambsquarters, stinkgrass, redroot pigweed, hairy nightshade, common purslane, yellow foxtail, and green foxtail, respectively. Prowl H<sub>2</sub>O provided reduced hairy nightshade control compared to Raptor plus Basagran. Raptor plus Basagran was not effective in suppressing stinkgrass (Table 2).

Forage yield was greatest in nontreated plots but weeds mixed with alfalfa reduced the RFV of the first cutting (Table 2). Raptor plus Buctril reduced weed density which dramatically improved RFV but reduced forage yield.

Table 1. Environmental Conditions at the Time of Herbicide Application.

Date	Air Temperature	Humidity	Wind speed & direction	Time of day	Alfalfa growth stage	Weed heights						
						Colq	Stgr	Rrpw	Hans	Copu	Yeft	Grft
	(F)	(%)	(mph)			- (inches) -						
April 20	57	34	2 SE	10:00 am	No growth	- no growth -						
May 21	77	30	4 SE	10:30 am	2 trifoliate	1.75	—	1.5	1.5	—	1	1.5

Rainfall and irrigation following herbicide treatments:

Date	Amount	Date	Amount	Date	Amount	Date	Amount
	- (inches) -		- (inches) -		- (inches) -		- (inches) -
April 24	0.30	May 3	0.26	May 8	0.50	May 21	0.23
May 1	0.75	May 5	0.29	May 18	0.50	May 29	0.23

Table 2. Early Season Weed Control in a New Seeding of Conventional Alfalfa at Scottsbluff, NE during the 2007 Growing Season.

Herbicide treatment <sup>1</sup>	Rate (lb/acre)	Time of application <sup>2</sup>	Alfalfa						Percent weed control 6/11 <sup>4</sup>							
			Visual injury <sup>3</sup>			Stand	Forage yield 7/9									
			5/15	5/31	6/11	6/6	Cutting 1	RFV	Colq	Stgr	Rrpw	Hans	Copu	Yeft	Grft	Avg
----- (%) -----			(plants/sq yd)			(tons/acre)		----- (%) -----								
Nontreated	—	—	0	0	0	61	2.6	165	0	0	0	0	0	0	0	0
Prowl H <sub>2</sub> O	1.42	PPI	27	63	38	38	1.1	214	99	99	99	88	99	99	99	97
Prowl H <sub>2</sub> O Raptor + UAN + X77	1.42 0.031	PPI 2 trifoliolate	30	77	65	38	0.8	235	99	99	99	99	99	99	99	99
Raptor + Buctril + UAN + X77	0.031 + 0.5	2 trifoliolate	0	13	5	73	1.2	227	99	67	99	99	91	99	99	93
LSD at 5%	—	—	5	12	16	35	0.25	24	17	18	10	4	15	10	10	

<sup>1</sup> Spray additives were added to herbicides at the following concentrations: liquid nitrogen (UAN) 33-0-0 at 1% and surfactant X77 at 0.25% per volume of carrier.

<sup>2</sup> Time of application: preplant incorporated (PPI) and postemergence when alfalfa was in the second trifoliolate growth stage (2 trifoliolate).

<sup>3</sup> Visual injury was evaluated on a scale from 0 to 100 with 0 equal to no injury and 100 equal to death of the plant.

<sup>4</sup> Weed control was determined by taking weed counts in the center of each plot and then comparing weed counts in herbicide treated areas to plots that were not treated. Weed abbreviations: common lambsquarters (Colq), stinkgrass (Stgr), redroot pigweed (Rrpw), hairy nightshade (Hans), common purslane (Copu), yellow foxtail (Yeft), and green foxtail (Grft).