

Project Title: Evaluation of Wild Oat Herbicides in Spring Wheat

Project Leaders: Bob Stougaard

Project Personnel: Qingwu Xue and Fernando Guillen

Objective: To evaluate reduced rate wild oat herbicide performance in spring wheat

#### Results:

Seven wild oat herbicides were applied at two application rates (label, 1X and half-label, 1/2X) to evaluate the consistency of wild oat control in spring wheat. Scholar spring wheat was planted on April 27, 2005 at a seeding rate of 75 lb/ac, with 7 inch row spacings, to a depth of 1.5 inches. Wild oat was planted within each plot at a density of 15 plants per square foot. Herbicides were applied on May 23, 2005 using a backpack sprayer with Teejet XR11002 nozzles in 20 GPA. Spring wheat and wild oat plants were at the 3-4-leaf stage with 0-2 tillers (1-2 for wheat and 0-2 for wild oat) and were 2-3" tall at the time of application.

Crop injury was minimal for most of the herbicides except Silverado, which resulted in 10% crop injury at 1 week after application. However, crop injury with Silverado declined as the season progressed. At label rates (1X), all the herbicides provided excellent wild oat control (91-100%). However, wild oat control varied among herbicides when applied at the half-label rate (1/2X), with Puma providing the poorest control. Wild oat competition significantly reduced yield (36%) and decreased grain test weight (3%). However, herbicide rate did not affect yield or test weight.

#### Summary:

Crop injury was minimal regardless of the rate applied. All herbicides provided excellent wild oat control at the 1X rate. However, wild oat control was reduced at 1/2X rate, especially with Puma. Although the 1/2X rate generally resulted in yields comparable to that obtained with the 1X rate, the 1/2X rate resulted on more wild oat biomass, and consequently, greater wild oat seed production.

#### Future Plans:

Continue to evaluate new and existing wild oat herbicides for efficacy and crop tolerance.

Table 1. Reduced rate herbicide effects on crop injury and wild oat control in spring wheat during 2005 season at Kalispell, MT.

Treatment	Label rate (1X, lb ai/a)	Crop injury (%)						Wild oat control (%)							
		5/31/05		6/9/05		6/20/05		5/31/05		6/9/05		6/20/05		7/27/05	
		1X	1/2X	1X	1/2X	1X	1/2X	1X	1/2X	1X	1/2X	1X	1/2X	1X	1/2X
Achieve	0.1800	1.7	1.7	1.7	0.0	0.0	0.0	56.7	51.7	83.3	85.0	96.7	96.7	100.0	100.0
Pinoxaden	0.0540	0.0	1.7	0.0	0.0	3.3	0.0	78.3	63.3	90.0	86.7	100.0	99.3	100.0	96.7
Everest	0.0262	3.3	1.7	0.0	0.0	8.3	3.3	50.0	50.0	75.0	73.3	100.0	93.3	97.0	96.7
Silverado	0.0028	10.0	10.0	8.3	3.3	3.3	5.0	78.3	71.7	86.7	76.7	91.7	82.7	100.0	92.3
Hoelon	1.0000	1.7	0.0	0.0	0.0	0.0	3.3	70.0	65.0	85.0	85.0	88.3	86.0	94.7	89.3
Puma	0.0830	0.0	0.0	0.0	0.0	0.0	0.0	70.0	60.0	88.3	80.0	100.0	45.0	91.3	61.7
Discover	0.0500	0.0	0.0	0.0	0.0	3.3	3.3	70.0	53.3	81.7	75.0	96.7	99.3	99.3	84.3
Control		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LSD (0.05)	Herbicide (A)	1.5		1.3		NS		9.1		4.8		8.1		4.7	
	Rate (B)	NS		0.7		NS		4.6		2.4		4.0		2.3	
	AxB	NS		1.8		NS		NS		NS		11.4		6.6	

NS: Not significant (P>0.05).

Table 2. Reduced rate herbicide effects on wild oat biomass, spring wheat yield and grain quality during 2005 season at Kalispell, MT.

Treatment	Label rate (1X, lb ai/a)	Wild oat biomass (g/m <sup>2</sup> )		Yield (bu/ac)		Test weight (lb/bu)		Dockage (%)	
		7/25/05		1X	1/2X	1X	1/2X	1X	1/2X
		1X	1/2X						
Achieve	0.1800	0.0	12.2	52.4	52.3	60.6	61.3	1.6	1.0
Pinoxaden	0.0540	0.0	0.0	49.5	46.0	61.3	61.3	1.2	1.2
Everest	0.0262	16.6	23.6	46.0	47.1	61.4	61.3	0.9	1.0
Silverado	0.0028	13.6	82.5	49.1	50.8	61.4	61.2	1.1	1.2
Hoelon	1.0000	19.5	59.5	50.1	46.8	61.8	61.5	1.0	1.1
Puma	0.0830	3.8	207.2	49.3	47.4	61.5	61.1	0.8	1.8
Discover	0.0500	18.3	55.7	52.1	51.0	61.4	61.1	0.6	1.0
Control		430.7	581.9	31.2	31.4	59.4	59.6	6.1	6.2
LSD (0.05)	Herbicide (A)		41.0		4.5		0.4		0.5
	Rate (B)		20.5		NS		NS		NS
	AxB		58.0		NS		NS		NS