Project Title: Evaluation of Wild Oat Herbicides in Spring Wheat

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Objective: To evaluate reduced rate herbicide performance in spring wheat

Results:

Seven herbicides were applied at two rates (label, 1X and half-label, 1/2X) to evaluate the consistency of wild oat control in spring wheat. The experimental design was a randomized complete block with 3 replications. Scholar spring wheat was planted on April 28, 2006 at a seeding rate of 75 lb/ac, in 7" row spacings, to a depth of 1.5 inches. Wild oat was planted within each plot at a density of 25 seeds per square foot. Herbicides were applied on May 24, 2006 using a backpack sprayer with Teejet XR11002 nozzles at 20 GPA. Spring wheat and wild oat were at 4- and 3-leaf stage, respectively, at the time of application.

Crop injury was initially observed with most herbicides, particularly at labeled rate, but only Silverado and Everest resulted in noticeable injury as the season progressed. However, the effects were transitory and injury was minimal by 8 weeks after application.

Except for Puma at 1/2X rate, all herbicides provided excellent wild oat control (>93%) regardless of the rate. However, herbicide rate did impact wild oat biomass, which was generally greater when herbicides were applied at the half rate as compared to the labeled rate. Correspondingly, yields tended to be slightly less for the half-labeled rate treatments. However, herbicide rate did not affect dockage, grain moisture or test weight.

Summary:

All herbicides treatments provided excellent wild oat control except the reduced rate of Puma. Application of herbicides at half-label rates resulted in slightly lower yields and more wild oat biomass than at label rates.

Future Plans:

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

Table 1. Effects of reduced herbicide rates on crop injury and wild oat control at Kalispell, MT during 2006.

Treatment	Label rate (1X, lb ai/ac)	Crop injury (%)								Wild oat control (%)					
		5/30/06		6/5/06		7/6/06		8/3/06		6/5/06		7/5/06		8/3/06	
		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	0.0	0.0	0.0	0.0	1.7	0.0	0.0	91.7	83.3	100.0	98.3	99.3	99.0
Axial	0.0540	0.0	0.0	0.0	3.3	0.0	1.7	0.0	0.0	91.7	91.7	100.0	95.0	100.0	99.0
Everest	0.0262	6.7	6.7	11.7	3.3	3.3	1.7	1.7	0.0	83.3	76.7	91.7	88.3	100.0	100.0
Silverado	0.0028	8.3	6.7	16.7	13.3	5.0	1.7	0.0	0.0	81.7	83.3	99.0	83.3	99.3	95.0
Hoelon	1.0000	8.3	3.3	0.0	0.0	1.7	0.0	0.0	0.0	88.3	80.0	100.0	93.3	100.0	98.3
Puma	0.0830	8.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0	91.7	83.3	96.7	76.7	96.3	85.0
Discover	0.0500	1.7	0.0	1.7	0.0	0.0	0.0	0.0	0.0	78.3	81.7	100.0	93.3	99.0	93.3
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)	5.7		3.5		2.3		NS		NS		4.1		1.3	
	Rate (B)	NS		1.9		NS		NS		NS		2.2		0.7	
	AxB	NS		4.9		NS		NS		NS		5.8		1.9	

Data from the control plots were excluded from the analysis.

Table 2. Effects of reduced herbicide rates on wild oat (WO) biomass, dockage, and spring wheat yield, grain moisture and test weight at Kalispell MT, during 2006.

Treatment	Label rate (1X, lb ai/ac)	WO Biomass (g/m^2) 7/7/06		Dockage (%) 8/8/06		Yield (bu/ac) 8/8/06		Grain moisture (%) 8/8/06		Test weight (lb/bu) 8/8/06	
		1X	1/2X	1X	1/2X	1X	1/2X	1X	1/2X	1X	1/2X
Achieve	0.1800	4.7	0.0	0.6	0.8	62.7	57.0	11.6	10.9	63.3	62.6
Axial	0.0540	0.0	5.9	1.2	0.8	63.5	56.7	14.0	11.4	62.3	62.6
Everest	0.0262	5.5	27.7	0.7	0.7	54.1	56.7	11.0	11.3	62.1	62.9
Silverado	0.0028	7.2	38.7	0.7	0.9	55.3	54.6	11.5	12.0	62.3	62.4
Hoelon	1.0000	0.0	4.9	0.9	0.8	58.8	58.8	11.8	11.1	62.4	62.7
Puma	0.0830	6.7	21.6	0.9	1.3	61.3	51.3	12.1	10.3	62.7	62.7
Discover	0.0500	0.0	9.1	0.9	1.2	66.0	61.4	12.9	12.2	62.8	62.9
Control		376.1	434.7	7.9	8.9	35.3	37.4	12.0	12.5	62.0	63.0
LSD (0.05)	Herbicide (A)	10.2		NS		5.1		NS		NS	
	Rate (B)	5.5		NS		2.7		NS		NS	
	AxB	14.5		NS		NS		NS		NS	

Data from the control plots were excluded from the analysis.