

Project Title: Wild Oat Herbicide Screening Trial

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Objective: To evaluate the effects of herbicides and application rates on wild oat control and spring wheat yield.

Results:

Eight herbicides were applied at their respective 1X and 1/3X rates to evaluate the consistency of wild oat control in spring wheat. The experimental design was a randomized complete block with three replications. 'Freyr' hard red spring wheat was planted on seven inch row spacings, to a depth of two inches on April 29, at a rate of 62 lb/A. Wild oat was seeded in the center of each plot at a density of 16 seeds per square foot on May 1. The herbicides were applied on May 28, using a CO₂ backpack sprayer with Teejet XR11002 nozzles in 20 GPA of water. Spring wheat and wild oat plants were at the 4- and 3-leaf stage, respectively, at the time of application. Broadleaf weeds were controlled with 0.6 oz/A of Harmony Extra applied post emergence on May 31. Wild oat control was evaluated seven weeks after application. Spring wheat and wild oat biomass were determined prior to wild oat shattering by harvesting two 1.46 ft² quadrats per plot on July 25. Spring wheat yield, test weight, dockage and grain protein were determined on August 25.

Crop injury was not observed with any of the treatments (data not presented). However, wild oat control varied widely among the herbicides evaluated (Table 1). Achieve, Axial, Everest, and Silverado afforded 90% wild oat control or greater when applied at their respective 1X rates. However, Discover, Goldsky, and Puma failed to provide commercially acceptable control (>80%) at comparable rates. Wild oat biomass averaged 169 and 430 g/m² for the 1X and 1/3X rates. When averaged over the two rates Everest was the most effective in reducing wild oat biomass, while Puma was the least effective. Spring wheat biomass, yield and test weight were highly variable as a result of insect damage. As a result, spring wheat variables were influenced by rate, but not by herbicide (Table 2).

Summary:

Overall, herbicide performance during 2008 was less effective compared to previous years, even when applied at labeled rates. The most consistent wild oat control was obtained with Achieve, Axial, and Everest.

Future plan:

Continued to evaluate and explore economically viable herbicide systems.

Table 1. Effects of wild oat herbicides and use rates on wild oat control, biomass and dockage.

Treatment (TRT)	Rate (1X) (lb ai/ac)	Percent control			Biomass (g/m ²)			Dockage (%)		
		1X	1/3X	TRT mean	1X	1/3X	TRT mean	1X	1/3X	TRT mean
Achieve	0.1800	96	78	87	0	361	180	1.3	2.2	1.8
Axial	0.0530	96	73	85	0	276	138	0.9	1.7	1.3
Discover	0.0500	68	52	60	230	636	433	1.5	3.8	2.7
Everest	0.0262	90	68	79	69	160	114	2.3	3.3	2.8
Goldsky	0.1050	73	43	58	306	389	347	2.3	6.3	4.3
Hoelon	0.7500	85	37	61	267	551	409	1.9	3.6	2.7
Puma	0.0830	65	35	50	348	568	458	2.0	4.4	3.2
Silverado	0.0028	90	70	80	136	496	316	1.8	2.7	2.3
Rate mean		83	57	70	169	430	299	1.8	3.5	2.6
Untreated			0			762			7.9	
LSD (0.05)	TRT		5.8			136			1.5	
	Rate		2.9			68			0.7	
	TRT x Rate		8.2			NS			NS	

Table 2. Effects of wild oat herbicides and use rates on spring wheat biomass, yield and grain quality.

Treatment (TRT)	Rate (1X) (lb ai/ac)	Biomass (g/m ²)			Yield (bu/ac)			TWT (lb/bu)		
		1X	1/3X	TRT mean	1X	1/3X	TRT mean	1X	1/3X	TRT mean
Achieve	0.1800	913	833	873	59	61	60	62	62	62
Axial	0.0530	991	832	911	70	66	68	62	62	62
Discover	0.0500	969	667	818	70	58	64	62	62	62
Everest	0.0262	755	818	786	58	59	58	62	62	62
Goldsky	0.1050	842	857	850	66	49	57	62	61	62
Hoelon	0.7500	643	756	699	59	52	55	62	62	62
Puma	0.0830	843	655	749	67	50	59	62	61	62
Silverado	0.0028	891	664	778	68	60	64	62	62	62
Rate mean		856	760	808	65	57	61	62	62	62
Untreated			390			41			61	
LSD (0.05)	TRT		NS			NS			NS	
	Rate		85			4.4			NS	
	TRT x Rate		NS			NS			NS	