Project Title: Evaluation of Wild Oat Herbicides in Spring Wheat

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Objective: Assess new and established wild oat herbicides for efficacy and crop tolerance.

Results:

A 2-gene, herbicide resistant (Clearfield) spring wheat cultivar was planted on April 12, 2004. Wild oat seeds were then planted in the center of each plot to assure a uniform weed density throughout the study site. The treatments included an experimental prepackaged combination of Beyond and MCPA (BAS 777), four existing wild oat herbicides (Discover, Everest, Achieve and Puma), 2,4-D Ester, Prowl H2O, and their combinations as well as an untreated check. Herbicides were applied in 20 GPA on May 17, 2004 using a backpack sprayer with teejet XR11002 nozzles. At the time of herbicides application, spring wheat was about 4 inches tall with 4-5 main stem leaves and 2-3 tillers. The wild oat was 3-4 inches tall with 3-5 main stem leaves and 0-3 tillers.

Crop injury was not observed with any of the herbicide treatments. The fact that Everest did not cause injury likely relates to the fact that a Clearfield variety was used in this experiment. Since Everest and Beyond both inhibit the ALS enzyme, any cultivar that is resistant to Beyond would most likely be resistant to Everest as well, especially when a 2-gene system is used.

Discover, Everest and Achieve provided excellent wild oat control (>94%) when combined with Prowl H2O. BAS 777 also provided excellent wild oat control (99%) regardless of whether Prowl H20 was included or not. Treatments that included Puma only provided 75-80% wild oat control. Wild oat control with Puma initially improved as the rate of Prowl H20 increased, but this response diminished by seasons end. Yields were significantly reduced in the untreated check plots (50 bu/A) compared to the herbicide treated plots (63 bu/A), but there were no significant yield differences among the herbicide treatments.

Summary:

Crop tolerance appeared excellent and all treatments. With the exception of Puma, all herbicides provided excellent wild oat control.

Future Plans:

Continue to evaluate wild oat herbicides in order to determine the consistancy of control and crop injury potential over years.

Table 1. Evaluation of wild oat (WO) herbicides in Spring Wheat.

Trt No.	Treatment	Rate	Crop injury (%)		WO Control (%)		Yield
		Lb ai/A	6/1/2004	6/25/2004	6/25/2004	7/27/2004	Bu/A
1	Check		0	0	0.0	0.0	50.2
2	BAS 777	0.28	0	0	85.7	99.0	66.0
3	BAS 777 Prowl H20	0.28 0.75	0	0	95.3	98.7	65.9
4	BAS 777 Prowl H20	0.28 1.25	0	0	97.7	99.7	66.3
5	Puma 2,4-D Ester	0.08 0.25	0	0	88.7	83.3	61.2
6	Puma 2,4-D Ester Prowl H20	0.08 0.25 0.75	0	0	93.3	80.0	61.6
7	Puma 2,4-D Ester Prowl H20	0.08 0.25 1.25	0	0	96.0	75.0	62.0
8	Discover Prowl H20	0.0625 0.75	0	0	97.7	95.0	63.2
9	Everest Prowl H20	0.0268 0.75	0	0	96.7	99.3	61.3
10	Achieve Prowl H20	0.178 0.75	0	0	92.7	94.0	62.1
LSD (P=0.05)					13.3	8.8	5.7
CV					9.2	6.2	5.4
Treatment Prob. (F)					0.0001	0.0001	0.0008