

PROJECT TITLE: Wild Oat Herbicide Screening Trial in Spring Wheat.

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PROJECT COOPERATORS: Scott Halley, Research Associate, NWARC.

OBJECTIVES: To evaluate new and existing wild oat herbicides for efficacy and crop tolerance.

RESULTS:

Spring wheat cultivar Clearfield 1210, was planted on April 19, 2001 at a rate of 75 lbs/acre on 6-inch rows to a depth of 1.75 inches. A fertilizer blend of 91-52-60-10 was applied prior to seedbed preparation. Plots were 10 X 15 ft with three replicates arranged in a randomized complete block design. Wild oat was planted in the center of all plots to improve the consistency of weed pressure. Treatments were applied on May 25 with a CO₂ backpack sprayer in 20 gallons water per acre at 30 psi. Teejet XR11002 nozzles spaced 20 inches apart were used for applications. The spring wheat was in the four to five leaf stage. Wild oat was 2 to 8 leaf but mostly 4 to 5 leaf and 1.5 to 3 inches tall. An application of Bronate was applied by backpack to non-tank mixed control plots of Puma, Discover, Everest, and Assert on June 1 to control broadleaf weeds. A maintenance spray, Buctril 2EC at 1 pint/acre was applied at 7:30 a.m. in 7.8 gpa water, on June 15 by tractor sprayer to control Clearfield canola that had been windblown from a neighboring trial.

This study compares two groups of herbicide mode of action; Puma and Discover represent ACC-ase inhibitors while Everest and Assert represent ALS inhibitors. Crop injury was observed, but was not correlated with herbicide mode of action. Crop injury was noted with Puma and Everest treatments at the June 1 rating date. However, injury symptoms dissipated as the season progressed. In contrast to the crop injury ratings, wild oat control was correlated with herbicide mode of action. The ACC-ase inhibitors, Puma and Discover, both failed to provide acceptable wild oat control. Wild oat control with Puma alone was rated fair and with Puma tank mixes poor on June 21. Control decreased by July 18 with all Puma applications. Discover and Discover tank mixes measured similar results with all applications giving poor control. Everest and Assert treatments essentially gave complete control by July 18.

SUMMARY:

Wild oat control was excellent when ALS inhibitors were applied. However wild oat control was poor with the ACC-ase class of herbicides. Either spring weather conditions were not favorable for the ACC-ase class of herbicides or wild oat resistance may be developing in western Montana.

FUTURE PLANS:

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

Wild Oat Control in Spring Wheat

HERBICIDE	APPLIC. RATE	CROP INJURY				WILD OAT CONTROL		YIELD 8-22 bu/acre	TEST WT lbs/bu	DOCKAGE %
		6-1	6-13	6-21	7-18	6-21	7-18			
	lb ai/a	%				%				
Check		0	0	0	0	0	0	44.7	60.5	7.9
Aim	0.008	10.0	0	0	0	56.7	30.0	58.0	60.5	4.5
<i>Puma</i>	0.078									
MCPA Ester	0.25									
Aim	0.008	13.3	0	0	0	40.0	35.0	51.9	60.2	5.2
<i>Puma</i>	0.078									
MCPA Ester	0.25									
Harmony GT	0.019									
<i>Puma</i>	0.078	16.7	3.3	0	0	83.3	66.7	66.3	60.9	2.3
Aim	0.008	1.7	0	0	0	26.7	13.3	53.3	60.3	4.8
<i>Discover</i>	0.031									
MCPA Ester	0.25									
DSV-Score	0.4									
Aim	0.008	0	0	0	0	30.0	20.0	54.1	60.5	5.6
<i>Discover</i>	0.031									
MCPA Ester	0.25									
Harmony GT	0.019									
DSV-Score	0.4									
<i>Discover</i>	0.031	0	0	0	0	70.0	23.3	50.8	60.4	3.6
DSV-Score	0.4									
Aim	0.008	11.7	0	10	0	86.7	99.0	72.6	60.7	0.5
<i>Everest</i>	0.28									
2,4-D Ester	0.25									
NIS	0.25									
Aim	0.008	3.3	0	0	0	90.0	99.0	77.3	61.4	0.7
<i>Everest</i>	0.028									
2,4-D Ester	0.25									
Harmony GT	0.019									
NIS	0.25									
<i>Everest</i>	0.028	10.0	6.7	5	3.3	90.0	99.0	77.1	61.7	0.6
NIS	0.25									
Aim	0.008	3.3	0	0	0	90.0	97.7	74.1	61.4	0.5
<i>Assert</i>	0.375									
NIS	0.25									
MCPA Ester	0.25									
Aim	0.008	3.3	0	3.3	0	90.0	99.0	74.9	61.1	0.8
<i>Assert</i>	0.375									
Harmony GT	0.019									
NIS	0.25									
MCPA Ester	0.25									
<i>Assert</i>	0.375	0	0	0	0	90.0	99.0	76.6	61.6	0.5
NIS	0.25									
LSD (P=.05)		8.4	3.7	5.0	NS	31.2	24.2	9.4	1.0	1.5
CV		88	288	209	625	28	24	9	1	31
Replicate Prob (F)		.011	.230	.602	.383	.178	.052	.159	.050	.612
Treatment Prob (F)		.001	.031	.008	.478	.001	.001	.001	.041	.001