

PROJECT TITLE: Wild Oat Control in Spring Wheat with Reduced Rates of Achieve.

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OBJECTIVES: To determine the consistency of wild oat control with reduced herbicide rates.

RESULTS:

McNeal spring wheat was planted on April 23, 2002 at a rate of 60 lbs/acre on 6-inch rows to a depth of 1.75 inches. Plots were 10 X 15 ft with four replicates arranged in a randomized complete block design. The field was fertilized with fertilizer blend of 195-52-62-20 lb/a. Wild oat was planted in all plots to improve the consistency of weed pressure. Achieve herbicide was applied at four rates on May 27, 2002, including normal labeled rate (1X), one-half (1/2X), one-fourth (1/4X) and one-eighth (1/8X) of normal rate. Nontreated and handweeded controls were included for comparison. Treatments were applied 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 had 4-5 main stem leaves with 1-2 tillers and wild oat had 3 main stem leaves with 0-1 tillers. To control broadleaf weeds, the 0.01546 lb ai/a Express plus 0.375 lb ai/a MCPA with 1 pt/a NIS was applied on June 14, 2002. Wild oat variables were measured prior to spring wheat maturity and wild oat seed shatter. Spring wheat was harvested on August 19, 2002.

The wild oat density, biomass, seeds production and dockage significantly decreased as herbicide rate increased. However, reduced rates were effective for wild oat control in spring wheat in 2002 season. For example, a 1/4X rate resulted in 80% reduction in wild oat biomass and seeds production, and less than 1% of dockage. Spring wheat yield and test weight increased as herbicide rate increased initially, then reached to plateau after herbicide rate was over 1/4X. However, the grain protein content increased at untreated and 1/8X rate (Table 1). The increase in grain protein in these plots could be due to more soil water stress during grain filling.

SUMMARY:

Environmental conditions at the time of application favored Achieve efficacy for wild oat control in the 2002 spring wheat growing season. Both 1/4X and 1/2X rates resulted in an effective wild oat control, high crop yield and test weight as compared to label rate.

FUTURE PLANS:

Continue to evaluate integrated approaches for the control of wild oat.

Table 1. Effect of Achieve herbicide rate on wild oat control, and spring wheat yield, test weight and grain protein at Northwestern Agricultural Research Center, Kalispell, MT in 2002.

Achieve rate	Wild oat				Spring wheat		
	Density	Biomass	Seeds		Yield	Test weight	Protein content
			production	Docakge			
lb ai/a	m ²	g/m ²	seeds/m ²	%	bu/a	lb/bu	%
0	137	436.5	7871	5.58	48.1	57.9	15.1
0.023 (1/8X)	118	180.1	3738	2.08	74.2	57.7	14.7
0.046 (1/4X)	72	75.4	1655	0.93	92.6	58.9	14.1
0.089 (1/2X)	40	31.9	968	0.78	92.2	58.7	14.2
0.178 (1X)	24	14.0	494	0.77	94.2	58.9	14.1
Handweeded	0	0.0	0	0.67	99.7	58.8	14.1
LSD(0.05)	30	56.4	1015	0.7	8.2	0.6	0.3