

PROJECT TITLE: Wild Oat Herbicide Screening Trial

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OBJECTIVES:

To evaluate crop tolerance, efficacy, and economic return of registered and experimental wild oat herbicides.

RESULTS:

Achieve, assert, avenge, discover, hoelon, MKH6562, and puma were applied at their respective 1X and 1/2X labeled use rates when wild oats were at the 3 leaf stage of development.

Of the currently registered products, achieve provided the most complete wild oat control, followed by assert, hoelon, puma, and avenge, respectively. Wild oat control was reduced when these products were applied at their 1/2X rate, especially so for hoelon, puma, and avenge. The reduction in control was reflected in spring wheat yield.

The experimental products, discover and MKH6562 provided excellent wild oat control regardless of the rate applied. As such, these products would be expected to provide more consistent wild oat control over a range of environments. For both experimental products, yields were higher for the 1/2X rate when compared to the 1X rate. In the case of MKH6562, this response was probably due to crop injury. However, crop injury was not observed with discover.

An economic analysis was conducted for all products. The cost per acre of discover and MKH6562 were estimated, as these products are not currently on the market. Dockage penalties were incurred for avenge, hoelon and puma at both rates, and for assert at the 1/2X rate. The most dramatic response was with the nontreated check, where dockage reduced per acre returns by 55 dollars. Adjusted gross returns were greatest for achieve when comparing among registered products.

SUMMARY:

All products provided commercially acceptable wild oat control when applied at the 1X rate with the exception of avenge. Reducing rates by half resulted in poorer control with most products. However achieve, assert, discover and MKH6562 continued to provided 90 percent control or better at the lower rates tested.

FUTURE PLANS:

This study will be repeated in order to determine the consistency of control and crop tolerance associated with wild oat herbicides.

	Wild oat plants #/10.76 ft		Wild oat dry Wt G/10.76 ft		Percent control (%)	
	1X	1/2X	1X	1/2X	1X	1/2X
	Achieve	8	44	4	20	99
Assert	47	141	7	40	99	91
Avenge	116	109	128	189	50	10
Discover	27	50	7	13	98	96
Hoelon	37	75	13	72	90	72
MKH6562	112	62	15	11	99	99
Puma	25	82	9	55	91	66
Check		138		322		0
LSD		50		56		15

	Yield Bu/A		Dockage (%)		Dockage Discount (\$)	
	1X	1/2X	1X	1/2X	1X	1/2X
Achieve	135	129	0.08	0.26	0	0
Assert	131	120	0.01	0.80	0	0.03
Avenge	86	60	4.80	7.23	0.33	0.58
Discover	134	143	0.03	0.10	0	0
Hoelon	131	115	0.71	1.08	0.03	0.03
MKH6562	132	139	0.03	0.11	0	0
Puma	133	114	0.51	1.81	0.03	0.09
Check		59		10.7		0.93
LSD		21		2.19		

	Gross Return		Discount		Adjusted Gross	
	1X	1/2X	1X	1/2X	1X	1/2X
Achieve	302.62	288.28	302.62	288.28	281.87	275.91
Assert	293.21	268.35	293.21	264.75	264.72	248.07
Avenge	193.76	133.50	165.21	98.93	142.81	85.31
Discover	299.93	320.32	299.93	320.32	278.69	307.27
Hoelon	293.66	258.04	289.73	254.59	265.93	240.69
MKH6562	295.68	311.80	295.68	311.80	274.44	298.75
Puma	298.59	254.91	294.59	244.67	274.54	232.65
Check	133.05		77.81		77.81	

Gross: yield \* grain price

Discount: (yield \* (grain price - discount))

Adj Gross: (Yield \* (grain price - discount)) - herbicide, application and surfactant cost.

Grain price: \$2.24 - #2 HRSW, 12% protein, Nov. 23.

Application cost: \$4.00/acre

Surfactant cost: \$0.87/acre

Herbicide cost/acre (1X rate):

Achieve	= 16.75
Assert	= 23.62
Avenge	= 17.53
Discover	= 16.37 estimate
Hoelon	= 19.80
MKH6562	= 16.37 estimate
Puma	= 16.05