PROJECT TITLE: Achieve Reduced Rate Study

PROJECT LEADERS: Bob Stougaard and Doug Holen, NWARC, Kalispell, MT

OBJECTIVE:

To evaluate the efficacy of reduced rate applications of Achieve to wild oat.

RESULTS:

Achieve is a new postemergence grass herbicide which has demonstrated excellent activity against wild oat. This study was conducted to evaluate the efficacy of reduced rate applications of Achieve to wild oat. Achieve was applied as fractions of the labeled 1.0X rate as follows: 0.12, 0.25, 0.37, 0.50, 0.75, and 1.0X, where 0.178 lb ai/A represents the current labeled 1X rate. Nontreated and handweeded treatments were also included for comparison. Wild oat dry matter, plant density, panicles, and seed yield measurements were taken shortly before harvest. The plots were harvested to determine spring wheat yield and test weight.

All wild oat parameters decreased as Achieve rate was increased but there appears to be little difference in results between the 1.0X rate and the 0.75X rate. As wild oat plant densities and dry weights were reduced, there was a corresponding reduction in wild oat panicles and seed production. Spring wheat yield steadily improved as Achieve rate was increased. Nonetheless the highest yielding Achieve treatment still produced spring wheat yields 11% less than the handweeded control treatment, demonstrating that spring wheat is especially vulnerable to wild oat competition.

SUMMARY:

Achieve consistently provides the most complete wild oat control when compared to currently registered wild oat herbicides. This product will certainly provide benefits to Montana growers, especially in non-competitive crops such as spring wheat.

FUTURE PLANS:

Continue to evaluate wild oat management practices which are efficient, economical, and environmentally sound.

Achieve Reduced Rate Study

Site Description

Crop: Spring Wheat Variety: McNeal Planting Date: 4-25-97
Planting Method: Disk Drill Rate, Unit: 69 Lbs/Acre
Depth, Unit: 1.5" Row Spacing, Unit: 7"
Soil Moisture: Good Emergence Date: 5-6-97

Plot Width, Unit: 10 FT Plot Length, Unit: 15 FT Reps: 3
Site Location: R-3 Study Design: RCB
Field Preparation/Plot Maintenance:

Fertility:	4-16-97	87 Lbs. N and 42 Lbs. P
Weed Control:	5-19-97	Bronate at 1.5 pts.
Quad Harvest:	7-28-97	All reported wild oat data
Plot Harvest:	8-22-97	

Wild oats planted at 68 Lbs/A or 24 pure-live seeds/ft2

Soil Description

Texture: Coarse Silty Mix % OM: 2.5 % Sand: 40 % Silt: 50 % Clay: 10
pH: 7.4 Soil Name: Creston Silt Loam

Application Information

Application Date:	5-21-97
Time of Day:	2:00 PM
Application Method:	BACKPACK
Application Timing:	POST
Air Temp., Unit:	79 F
% Relative Humidity:	15
Wind Velocity, Unit:	4 MPH
Dew Presence (Y/N):	N
Soil Temp., Unit:	80 F
Soil Moisture:	DRY
% Cloud Cover:	0

Plant Species	Plant Stage
Wild Oat	3 Leaf
Spring Wheat	4 Leaf & 1 Tiller

Application Equipment

Sprayer Type	Speed MPH	Nozzle Type	Nozzle Size	Nozzle Height	Nozzle Spacing	Boom Width	GPA	Carrier	PSI
Backpack	2.5	Flatfan	11002XR	14"	20"	10'	20	H20	20

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Treatment Name	Rate	Rate Unit	W. OAT DRY WT GRMS/FT2	W.OAT PLANTS FT2	W. OAT HEADS FT2	W. OAT SEEDS FT2	W. OAT 1000 KWT GRAMS	SPR WHT YIELD BU/ACRE	SPR WHT TEST WT LB/BU
UNTREATED			55.7	20.9	29.2	1173.3	15.6	23.8	62.6
ACHIEVE	.022	lb ai/A	53.2	18.6	33.6	1149.0	14.5	28.9	62.3
TF 8035	0.5	% v/v							
ACHIEVE	.046	lb ai/A	37.7	15.6	22.2	865.2	12.1	31.6	61.6
TF 8035	0.5	% v/v							
ACHIEVE	.067	lb ai/A	25.9	18.5	23.7	613.2	11.4	38.0	61.0
TF 8035	0.5	% v/v							
ACHIEVE	.089	lb ai/A	11.8	8.0	9.6	274.1	11.0	40.6	61.3
TF 8035	0.5	% v/v							
ACHIEVE	.134	lb ai/A	6.9	4.7	5.3	166.8	8.7	47.9	61.1
TF 8035	0.5	% v/v							
ACHIEVE	.178	lb ai/A	5.4	4.8	6.3	170.3	10.0	51.4	61.2
TF 8035	0.5	% v/v							
HAND WEEDED			0.0	0.0	0.0	0.0	0.0	58.1	62.3
LSD (.05)	=		25.2	9.5	13.5	581.3	1.8	7.5	1.0
CV	=		58.62	47.70	47.50	60.19	9.64	10.63	0.96
Treatment Prob(F)			0.0010	0.0017	0.0006	0.0024	0.0001	0.0001	0.0211