

PROJECT TITLE: 2004 Evaluation of winter wheat variety performance on no-till recrop at Moccasin and Denton.

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OBJECTIVES:
Evaluate agronomic performance of winter wheat varieties in no-till recrop (continuous) crop environments near Moccasin and Denton, Montana.

RESULTS:
The growing conditions for the 2004 winter wheat crop were much better than most recent years. Moisture conditions were not outstanding, but cool June temperatures minimized evaporation demand during critical seed fill. However, below average precipitation in June and July resulted in below average test weights. The Moccasin and Denton sites have been no-till continuous crop for a number of years with pulse and oilseeds included in the rotation along with winter wheat, barley and spring wheat. The continuous cropping has reduced yield levels slightly, but not as much as some suspect. Both of these sites are on relatively shallow soils, 2-3.5 feet in depth, and thus do not have soils with large water holding capacities. The use of broadleaf legume and oilseed crops has facilitated the use of a wider array of herbicides which has help managed wild oats, downy brome and other weeds often associated with cereal only systems.

Development line MT00159 along with Falcon and Neeley were the two location high grain producers (Tables 1 & 2). Falcon, Promontory and Paul, relatively new varieties, have multi-year yield levels, under Moccasin No-Till, similar to slightly higher than Neeley along with the old stand by Rocky (Table 3). At Denton, Promontory and Falcon have multi-year yields slightly higher than Neeley (Table 4). Sawfly were not a problem at any of the test sites. Therefore, the sawfly lines, including the newest release Genou, did not show an advantage at these sites.

SUMMARY:
MT00159 continues to have outstanding yield performance as it has done in the two previous years. Winter wheat yields were much above expectations for both the Moccasin and Denton locations given the below average precipitation levels. The protein levels indicate some nitrogen loss may have occurred at the Denton location.

FUTURE PLANS:
CARC will continue to evaluate winter wheat varieties under no-till continuous crop environments in central Montana.

Table 1
Exp 3870

2004 Moccasin no-till recrop winter wheat variety performance.
Central Agricultural Research Center, Moccasin Montana.

Variety	Head Date d of Y	Plant Height "	Grain Yield bu/a	Test weight lbs/bu	Grain Protein %
MT00159	171	34.5	50.7	56.5	13.5
Paul	169	33.6	48.7	55.8	13.5
CDC Falcon	168	32.5	47.4	55.2	13.7
Neeley	170	33.5	47.2	53.8	13.6
Pryor	172	31.2	47.1	57.0	13.5
Jagalene	164	32.0	46.8	56.4	14.0
MT01148	167	32.5	46.7	56.5	13.6
Rocky	165	34.9	46.3	56.0	14.5
Morgan	173	36.3	45.9	55.5	13.0
Wahoo	164	31.1	45.9	56.3	13.9
Millenium	166	33.5	45.4	58.8	13.4
MT0177	173	34.0	45.0	55.1	14.3
Jerry	171	36.3	44.9	56.9	14.3
NuWest (HWW)	170	31.3	44.6	56.0	14.7
NuSky (HWW)	173	34.0	44.6	57.8	13.4
Promontory	168	33.6	44.3	56.3	14.2
MTW01133 (HWW)	165	27.5	42.7	59.9	14.4
MT0097	172	33.6	42.2	57.6	15.0
MTCL01159	170	33.5	41.0	55.4	14.6
Vanguard	169	33.1	39.0	56.4	15.0
Tiber	174	35.7	37.7	57.8	15.2
BigSky	170	36.8	37.2	56.3	14.8
Rampart	171	34.9	36.6	56.3	15.1
Genou(MTS0031)	172	33.9	36.0	57.5	14.5
MEAN	169.5	33.488	43.9	56.57	14.2
CV(S/MEAN)%	0.748	6.22	6.96	1.114	
LSD(0.05)	2.084	3.4	5.02	1.304	

d 170= June 19

Seeded: 23-Sept-03 No-till recrop after barley

Fertilizer: NPKS 10+10+10+10+05 w/seed. Urea (90N) top dress.

Weed Control: Pre-plant 10 oz glyphosate (Roundup Ultra).
Pre-boot 1.5 pt bromoxynil + MCPA (Bronate).

Table 2 2004 Off-Station winter wheat variety evaluation near Denton.
Exp3871 Central Agricultural Research Center. Moccasin Montana.

variety	Ht	Yield	Test Wt	Protein
	"	bu/a	lbs/bu	%
Wahoo	73.0	60.6	58.3	10.6
MT00159	81.7	59.1	59.5	11.5
CDC Falcon	78.3	55.6	59.1	11.0
Neeley	82.0	55.6	60.8	11.6
Jagalene	75.7	55.5	62.7	10.7
Millenium	82.3	55.5	60.6	11.6
MT0177	84.7	54.9	59.8	11.8
NuSky (HWW)	90.0	54.8	60.3	10.9
Pryor	83.3	54.7	60.0	9.0
MT01148	80.0	54.7	60.2	11.3
Rocky	93.7	53.9	61.0	11.3
Promontory	84.7	53.8	62.1	11.6
MT0097	80.0	53.5	59.4	11.7
Morgan	87.7	52.2	60.0	11.3
MTW01133 (HWW)	67.0	52.1	59.4	12.3
Rampart	91.3	51.7	60.7	11.3
Paul	78.7	51.0	58.9	11.6
Genou (MTS0031)	83.3	50.2	60.2	11.1
Jerry	91.0	50.2	59.4	11.9
Big Sky	90.7	49.9	60.1	12.2
Vanguard	87.0	48.7	60.3	11.9
NuWest (HWW)	88.7	48.7	60.6	11.8
Tiber	96.0	47.8	60.2	10.4
MTCL01159	76.0	41.4	57.8	11.0
Mean	83.61	52.76	60.04	11.31
cv 1	4.914	6.738	1.284	
LSD(0.05)	6.753	5.843	1.594	

Seeded: 1-Oct-03 No-till recrop after hayed hay barley.
 Fertilizer: Post plant top dress urea (60N/a). Farmer applied
 Herbicide: Farmer applied
 Soil Moisture: Shallow

Table 3. Moccasin recrop winter wheat multi-year, 1995-2004, yield summary of selected varieties.
Exp. 38700 Central Agricultural Research Center, Moccasin, Montana.

Selected Varieties	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	avg	Neeley Same Yrs
	----- bu/a -----											
Neeley	33	31	69	47	45	43	36	34	38	47	42	42
Rocky	39	34	73	50	43	45	39	31	38	46	44	42
Tiber	36	29	56	46	45	41	39	35	33	38	40	42
NuWest	38	30	51 ^{2/}	50	39	40	37	38	30	45	39	42
Vanguard	27 ^{1/}	27	59	47	38	39	34	35	30	39	39	42
Rampart	36	27	55 ^{2/}	48	38	37	33	-	34	37	38	42
Promontory		29	61	50	48	46	36	39	31	44	43	44
BigSky			65	47	39	40	37	36	27	37	41	45
Morgan					42	38	35	36	35	46	39	41
Paul (MT 9426)							35	36	38	49	40	39
NuSky								40	32	45	39	40
cdc Falcon								39	39	47	42	40
Genou (MTS0031)								36	37	36	36	40
Pryor									39	47	43	43
Jerry									38	45	41	43
Mean	37	29	61	47	42	41	35.2	36	35	44		

^{1/} Suspected low germination resulted in low yields. ^{2/} Yields from one rep only.

1994 trial was abandoned due to variable stand as a result of extremely wet conditions at seeding.

Table 4 Denton recrop winter wheat multi-year yield summary of selected varieties, 1994-2004
Exp. 3801 Central Agricultural Research Center, Moccasin, MT

Select Varieties	1995	1996	1997	1998	1999	2001	2002	2003	2004	average	Neeley Same Yrs
	----- bu/a -----										
Neeley	82	44	62	61	45	48	51	37	56	54	54
Rocky	73	46	59	61	40	31	53	35	54	50	54
Tiber	73	42	65	61	46	45	49	35	48	52	54
NuWest	67	43	64	59	45	39	51	34	49	50	54
Vanguard	56	41	56	62	35	34	46	36	49	46	54
Rampart	76	40	51	55	37	33	--	32	52	47	54
Promontory		53	56	65	47	37	52	43	54	51	50
BigSky			64	62	44	39	46	36	50	49	51
Morgan					46	34	49	32	52	43	47
Paul (MT 9426)						41	46	39	51	44	48
NuSky							46	34	55	45	48
cdc Falcon							53	41	56	50	48
Genou (MTS0031)							47	37	50	45	48
Pryor								43	55	49	46
Jerry								37	50	44	46
Nursery Mean	73	43	60	60	42	36	49	37	53	50	

1994 stand was variable due to wind damaged. Thus abandoned.

1999 two reps were harvested. 2000 yields not reported due to plugged drill opener in some rows.