PROJECT TITLE: 2003 Evaluation of winter wheat variety performance on no-till recrop into undisturbed barley stubble near Moccasin.

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OBJECTIVES:
Evaluate agronomic performance of winter wheat varieties in recrop or continuous crop environments in the southern triangle and central Montana.

RESULTS:
2003 Winter wheat variety trial re-cropped no-till after barley was established at the Central Ag Research Center on land in its eighth year of continuous no-till annual cropping (since 1996). The current rotation is: pulse – spring wheat – canola/mustard – barley – barley – winter wheat – pulse crop. Soil moisture conditions were fair to good at seeding (soil moisture probe depth 10-12"). However, high post seeding temperatures and winds dried the soil late into the fall. Much above average April precipitation contributed to excellent yield potential. Return of severe drought conditions in early June resulted low test weights which deflated the yield levels. The droughty weather in combination with the variable shallow soils resulted in extremely variable yield results and low confidence results.

Promontory and a Promontory x Judith cross (MT00159) produced the highest yields with 49.4 and 41.6 bu/a, respectively (see Table 1). Promontory also has an eight year average yield (42.3 bu/a) slightly higher than Neeley (41.8 bu/a) for the same years(Table 2). Rocky and Promontory are the only two entries that have a multi-year mean yield greater than Neeley. Test weights were extremely low, nursery mean 52.0 lbs/bu, due to the severe drought stress from late June through ripening (Table 1). Rocky had the nursery highest test weight at 55.0 lbs per bu and was the first to head. Proteins were expectedly high with Big Sky and Tiber topping the nursery protein content at 17.3% and 17.2 %, respectively.

SUMMARY:
2003 No-Till recrop weather precipitation conditions were such that early maturity was favored. The later the maturity the greater the exposure to increased heat and reduced plant available moisture. The main factor missing was winter stress. The good performance of several numbered lines indicate the potential for improved varieties in the near future.

FUTURE PLANS:
Winter wheat variety evaluations will continue at Moccasin.

Table 1 2003 No-till recrop winter wheat at Moccasin
Exp 3870 Central Agricultural Research Center. Moccasin, Montana.

ID	Variety	Headdate	Plant Ht	Yield	Test Wt	Protein
		d of y	"	bu/a	lbs/bu	%
PI555458	PROMONTORY	168	29	49.4	50.3	15.9
MT00159	Promontory/Judith	170	29	41.6	51.4	15.9
S94-4	CDC FALCON	169	29	38.9	53.1	15.3
BZ96-919	PRYOR	171	27	38.7	48.6	15.5
PI586806	NUWEST	169	30	38.5	53.2	15.6
MT9426	PAUL	169	33	38.4	47.4	15.5
MTI01158	Fidel/Tiber	168	33	38.3	53.3	16.0
MT0097	Erhardt//Judith/Kestrel	169	31	38.1	53.4	15.8
CI 17860	NEELEY	171	29	37.9	49.2	16.3
ND9257	JERRY	170	33	37.9	53.4	15.6
CI 17879	ROCKY	**167**	35	37.6	**55.0**	15.6
MT9982	Promontory/Judith	170	29	37.4	52.3	15.7
MTS0031	MTS92015//Vanguard/Norstar	169	34	36.9	53.8	16.1
PI599336	MORGAN	171	30	34.6	52.8	15.6
MT9989	Blizzard/Arapahoe	168	29	33.8	48.2	16.3
PI517194	TIBER	170	32	33.3	52.1	**17.2**
MTW9441	NUSKY	168	35	31.5	54.4	14.9
PI593889	RAMPART	169	34	30.9	54.8	15.8
RH78W296	BIGHORN	168	30	30.9	53.6	16.2
PI593891	VANGUARD	167	31	29.9	54.5	16.7
PI584526	JUDITH	167	28	29.7	47.5	16.4
MTR9997	PI262605/MT7863//Redwin	168	32	29.1	51.4	16.2
MT 9432	BIGSKY	168	34	26.7	52.2	**17.3**
CI 17735	NORSTAR	173	34	22.5	55.4	15.4
	OVERALL MEAN =	169.0	31.25	35.11	52.1	16.0
	CV (S/MEAN) % =	0.52		21.12		
	LSD(0.05 by t)=	1.44		12.19		

Seeding Date: 26-Sep-02 No-till into 2002 barley stubble.
Fertilizer: 10-10-10-05 w/seed 90 N topdress Urea
Harvest Date: 28-Jul-03 ecip: crop 12.41" ow Seasc 8.17"

Table 2. Moccasin recrop winter wheat multi-year, 1993-2003, yield summary of selected varieties.
Exp. 38700 Central Agricultural Research Center, Moccasin, Montana.

Selected Varieties	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	avg	Neeley Same Yrs
	---------- bu/a ----------											
Neeley	44	33	31	69	47	45	43	36	34	29	41.1	41.1
Norstar	39	33[1/]	26	54	45	41	40	32	34	34	38.3	41.1
Rocky	40	39	34	73	50	43	45	39	31	35	**42.9**	**41.1**
Tiber	45	36	29	56	46	45	41	39	35	32	40.4	41.1
Judith	36	40	31	63	53	43	46	36	38	28	41.4	41.1
Quantum 542	38	30	30	66	52	53	39	-			44.0	44.6
Bighorn	35	40	28	65	48	42	44	37	34	30	40.3	41.1
NuWest	-	38	30	51[2/]	50	39	40	37	38	30	37.8	40.8
Erhardt		35	28	63	44	30	37	32	-		38.4	43.4
Vanguard		27[1/]	27	59	47	38	39	34	35	31	38.8	40.8
Rampart		36	27	55[2/]	48	38	37	33	-	34	36.1	41.6
McGuire		31	28	53	36	32	36	30	31		34.6	42.3
Promontory			29	61	50	48	46	36	39	29	**42.3**	**41.8**
BigSky				65	47	39	40	37	36	34	42.6	43.3
Morgan						42	38	35	36	30	36.2	37.4
Mean	37	37	29	61	47	42	41	35.2	36	35	40.0	

[1/] Suspected low germination resulted in low yields. [2/] Yields from one rep only.

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