PROJECT TITLE: 2004 Evaluation of spring wheat variety performance in no-till recrop systems in central Montana.

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OBJECTIVES:
Evaluate the agronomic performance of spring wheat varieties in recrop or continuous crop environments in central Montana.

RESULTS:
2004 Spring wheat recrop variety trial followed lentils at the Central Ag Research Center and was established on land in its ninth year of continuous no-till annual cropping. The continuous no-till site at Denton was also established after lentils. The Geraldine Location was established after winter wheat. The Geraldine location had excellent establishment in spite of very heavy residual wheat stubble. However, a variable and dense stand of wild oat escapes rendered the Geraldine site useless.

Dry April conditions hindered early plant growth at both Moccasin and Denton. Moisture conditions improved later at the Denton site and cool June weather help maximize plant growth from the available soil water. The Moccasin yields were slightly below long-term expectations and Denton yields were at or slightly above long term expectations for recrop spring wheat. Outlook and Reeder were in the top three grain producer at both locations. The test weights at Moccasin were below standard (mean 54.9 lbs/bu) and near standard at Denton (mean 59.1 lbs/bu). Protein levels averaged 16.0 and 14.0 percent at Moccasin and Denton, respectively, which is expected when test weights are below standard. Multi-Year average yields are compared to McNeal yields for the same years in table 3 and 4.

SUMMARY:
Outlook, released to growers in 2004, and Reeder were top performers for yield and protein content. Outlook faltered in test weight at Moccasin (54.2 lbs/bu) compared to Reeder (57.5 lbs/bu). Ernest was the low yielder at both locations.

FUTURE PLANS:
The spring wheat recrop variety performance evaluations will continue at Moccasin, Denton and Geraldine.

Table 1 2004 No-till continuous spring wheat variety trial.
Exp 997004 Central Agricultural Research Center. Moccasin, Montana.

ID	Variety	Trt	Head Date	Plant Height	Grain Yield	Test Weight	Protein Content
		#	d of y	"	bu/a	lbs/bu	%
MT 0249	ND695/MT9433	18	183.3	31.3	31.2	55.8	15.6
PI632252	Outlook	11	185.0	31.6	30.9	54.2	14.8
ND 695	Reeder	10	184.0	34.0	30.3	57.5	14.9
BZ992322	Hank	13	183.0	32.2	29.9	54.0	15.7
MT 0245	MT9433/ND695	17	185.3	31.7	29.8	55.1	15.9
MT 0266	ND695/MT9755	19	182.0	32.6	28.8	51.9	15.2
WB 936	Westbred 936	22	181.7	29.7	28.6	55.5	15.8
BZ992588	Conan	8	182.0	31.8	28.4	56.6	16.0
PI574642	McNeal	3	185.0	32.9	28.3	53.4	16.5
PI607557	Scholar	9	185.0	33.7	28.3	56.2	15.9
CI 13596	Fortuna	1	184.7	33.2	27.7	55.7	15.9
MTHW0202	ID377S/MTHW9701	16	179.3	32.4	27.6	56.1	16.3
MT 9929	Choteau	12	184.7	32.6	27.5	57.2	15.1
PI615543	Alsen	20	182.7	32.2	27.4	55.3	16.3
MTHW9420	MT8182/MT8289	14	185.0	30.4	27.2	52.2	16.0
WB 926	Westbred 926	7	181.3	34.0	27.2	54.0	16.6
PI549275	Hi-Line	2	182.0	32.0	27.2	52.6	16.5
PI527682	Amidon	4	184.3	34.4	26.5	55.1	16.5
C982-324	Rambo	5	184.3	28.8	26.0	55.4	16.5
CI 17430	Newana	21	186.0	30.3	26.0	54.7	16.2
PI619086	Explorer	15	181.0	31.1	25.8	55.2	17.2
PI592761	Ernest	6	185.3	33.6	24.0	54.6	17.4
Mean			183.5	32.1	27.93	54.93	16.0
F test for var (df= 42)			13.83	1.68	3.22	7.51	
C.V. 1: (S/MEAN)*100			0.45	6.11	6.15	1.71	
LSD (0.05)			1.36	3.23	2.83	1.55	

Planted: April 12, 2004 No-till CC after lentils 03, barley 02, and yellow mustard 01.
Fertilizer: Pre-plant topdress 30N as urea. W/seed 10-10-10-5.
Herbicide: Post plant 10 oz glyphosate. Bronate: wheat @ 3-4 lf May 24
Precipitation: sept -Aug 13.5 (ave 15.4)

Table 2 2004 Denton spring wheat variety performance trial.
Exp 9971 Central Agricultural Research Center. Moccasin, Montana.

ID	Pedigree	Trt	Plant Height	Grain Yield	Test Weight	Protein Content
		#	"	bu/a	lbs/bu	%
MT 0245	MT9433/ND695	17	28.7	37.1	59.8	13.3
PI632252	Outlook	11	30.3	36.0	58.6	13.9
ND 695	Reeder	10	31.5	35.5	59.9	13.8
WB 926	Westbred 926	7	28.4	34.9	58.8	14.6
MT 0249	ND695/MT9433	18	28.4	34.8	60.5	13.6
MTHW0202	ID377S/MTHW9701	16	28.4	34.2	60.9	13.3
MT 9929	Choteau	12	29.1	34.1	61.0	14.6
BZ992322	Hank	13	30.7	33.8	56.9	14.2
PI615543	Alsen	20	29.5	33.4	60.2	14.4
WB 936	Westbred 936	22	25.6	33.3	57.7	14.1
PI619086	Explorer	15	27.2	32.9	59.0	14.1
CI 17430	Newana	21	27.6	32.6	61.0	13.0
MT 0266	ND695/MT9755	19	29.9	32.5	55.5	14.3
PI574642	McNeal	3	31.5	32.4	58.4	14.0
BZ992588	Conan	8	28.7	32.4	59.7	14.4
C982-324	Rambo	5	30.3	32.1	58.8	14.6
PI607557	Scholar	9	34.7	31.9	60.1	13.4
PI549275	Hi-Line	2	27.2	31.8	59.4	14.2
MTHW9420	MT8182/MT8289	14	28.4	31.3	58.2	12.8
CI 13596	Fortuna	1	36.2	29.1	58.3	13.6
PI527682	Amidon	4	37.0	28.2	56.8	15.4
PI592761	Ernest	6	35.0	27.9	59.6	15.2
Mean			30.2	32.8	59.1	14.0
F test for var (df= 42)				1.85	6.48	
C.V. 1: (S/MEAN)*100				8.99	1.67	
LSD (0.05)				4.87	1.62	

Planted: April 6, 2004 No-till in to continuous crop lentil stubble. 2" Soil temp: 15C
Fertilizer: N 45 lbs urea topdress. W/seed NPKS 10-10-10-05.
Herbicide:
Precipitation: 18" moist soil @ seeding.

Table 3. Moccasin recrop spring wheat multi-year summary of selected varieties1992-2004
Exp. 9970 Central Agricultural Research Center, Moccasin, Montana.

Selected Varieties	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2003	2004	Ave	McNeal Same Years
	---------- bu/a ----------													
McNeal	39	52	22	45	24	63	37	42	33	33	23	28	37.5	38.0
Amidon	35	55	23	40	22	52	34	39	31	32	21	26	34.9	38.0
Fortuna	27	44	24	35	22	48	33	37	33	29	22	28	32.1	38.0
Rambo	34	43	23	39	21	55	33	36	31	28	21	26	33.1	38.0
Ernest			21	40	20	48	34	30	30	27	18	24	29.8	35.7
WestBred 936				43	23	53	34	37	32	28	21	29	33.8	37.4
Scholar					24	51	33	35	33	35	19	28	32.9	36.4
MTHW 9420					23	66	38	37	33	31	18	27	35.2	36.4
Reeder	(ND 695)							32.8	35	36	20	30	30.8	31.8
Conan	BZ992322							36.6	28	34	17	28	29.0	31.8
Explorer	(MTHW9710)								30	35	17	26	27.4	29.2
Outlook	(MT 9874)									32	22	31	27.1	27.9
Choteau	(MT 9929)									29	21	28	25.0	27.9
Hank	(BZ 992588)										17	30	17.2	25.4
Nursery Mean	31.1	48.1	22.4	40.4	21.9	54.8	34.5	35.5	31.6	31.3	19	28	34	

Table 4 Denton recrop spring wheat multi-year yield summary of selected varieties, 1992-2004
Exp. 9971 Central Agricultural Research Center. Moccasin, Montana.

Selected Varieties	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Ave.	McNeal Same Yrs
	---------- bu/a ----------														
McNeal	27	92	22	43	24	47	34	17	29	29	22	15	32	33.3	33.3
Fortuna	17	66	20	33	22	42	32	18	29	26	19	18	29	28.5	33.3
Rambo	25	74	20	37	23	43	29	12	25	27	18	17	32	29.4	33.3
Ernest			19	41	25	46	29	17	24	28	18	16	28	26.5	28.2
WestBred 936				39	26	43	35	16	26	31	21	18	33	28.8	28.9
Scholar					26	46	37	16	29	31	21	18	32	28.5	27.1
MTHW 9420					24	44	30	12	26	28	20	17	31	25.9	27.1
Reeder	(ND 695)							18	28	32	24	17	36	25.8	22.4
Conan	(BZ 992588)							14	26	28	22	17	32	23.3	22.4
Explorer	(MTHW9710)								27	29	24	18	33	26.1	23.8
Outlook	(MT 9874)									29	24	18	36	26.8	22.0
Choteau	(MT 9929)									30	21	16	34	25.3	22.0
Hank	BZ992322										21	17	34	23.7	18.5
Nursery Mean	24.0	77.0	22.0	38.0	24.0	44.0	32.0	15.0	26.6	28.0	21.1	16.9	32.8		

The variety trial was planted re-crop on pea ground in 1992, re-crop on buckwheat in 1996, re-crop following millet in 1997, and lentils in 2002 & 03. All other years the trial was planted on fallow ground.