PROJECT TITLE: 2003 Statewide evaluation of spring wheat variety performance in advanced yield and preliminary yield trials.

PROJECT LEADER: D. M. Wichman, Agronomist, Moccasin, MT

PROJECT PERSONNEL: L. E. Talbert, Spring Wheat Breeder, Bozeman, MT
S. P. Lanning, Spring Wheat Research Assoc., Bozeman, MT
J. Vavrovsky, Research Specialist, Moccasin, MT

OBJECTIVES:
Evaluate the agronomic performance of advanced and early generation spring wheat lines under crop-fallow environment in central Montana.

RESULTS:
2003 Spring wheat variety was established on fallow ground cropped in barley in 2001.The Moccasin location experienced dry conditions through the winter than had much above average precipitation April through early May. The growing season precipitation dwindled to almost nothing from June 10 through the first half of July. Field conditions at seeding were good with very little residue to obstruct the drill and good soil moisture. Cool temperatures through April into early May slowed seed germination and seedling emergence. Dry conditions coupled with much above average temperatures in the mid to late growing season severely stressed the spring wheat. The droughty weather in combination with the variable shallow soils resulted in extremely variable yield results. The spring wheat ripen earlier than usual but harvest was delayed some because of conflict with other harvests.

The Advanced Yield nursery results are presented in Table 1 and Preliminary Yield Trial results are presented in Table 2.Yield levels were 10 to 15 bushels below pre-plant expectations.

SUMMARY:
Drought conditions contributed to low yields and test weights and above normal grain protein levels. These trials continue to show how spring wheat varieties perform in less than ideal plant available water conditions.

FUTURE PLANS:
This trial will be continued in the same rotation.

Table 1 2003 Spring Wheat Advanced Yield Trial.
Exp3107 Central Agricultural Research Center. Moccasin, Montana.

ENTRY	ID	PEDIGREE	Head Date	Plant Height	Grain Yield	Test Weight	Grain Protein
			d of Y	"	bu/a	lbs/bu	%
1	CI 10003	THATCHER	186	25	11.7	46.9	20.5
2	CI 13596	FORTUNA	183	27	17.8	49.9	20.0
3	CI 17430	NEWANA	185	23	15.8	50.3	20.1
4	PI549275	HI-LINE	181	23	14.3	47.3	20.3
5	PI574642	MCNEAL	184	25	20.1	48.9	20.3
6	PI527682	AMIDON	182	25	18.3	51.4	20.0
7	PI592761	ERNEST	182	26	15.7	50.8	19.9
8	PI607557	SCHOLAR	183	27	17.4	52.5	20.0
9	ND 695	Reeder	183	26	17.6	50.6	19.8
10	WB 926	WESTBRED 926	180	26	15.3	48.7	20.2
11	BZ992588	Conan	182	23	18.5	51.3	19.6
12	BZ992322	HANK	181	26	20.9	49.3	19.7
13	MT 9874	OUTLOOK	184	24	16.2	47.9	20.2
14	MT 9918	MT9328/MT9419	181	27	16.4	50.5	19.4
15	MT 9929	MT9401/MT9328	183	23	14.6	51.2	19.8
16	MT 0009	MCNEAL/MT941	181	25	21.0	53.2	19.6
17	MT 0013	MCNEAL/MT941	181	23	20.1	47.7	20.0
18	MT 0103	BZ992632/MCNE	185	23	16.3	50.1	19.6
19	MT 0112	ERNEST/MT941	182	25	14.5	50.1	19.4
20	MT 0118	ERNEST/MT941	182	24	16.1	49.6	19.6
21	MT 0134	MT9410/ERNEST	184	25	15.2	50.1	20.5
22	MT 0147	MT9565/ERNEST	180	25	13.3	52.9	19.3
23	MT 0148	MT9565/ERNEST	183	25	18.3	52.6	20.1
24	MT 0202	MCNEAL/GRANI	181	27	14.2	53.3	19.5
25	MT 0205	MCNEAL/MT880	184	26	17.8	47.5	20.0
26	MT 0212	MCNEAL/MT880	182	25	16.4	48.8	19.9
27	MT 0220	MCNEAL/ND695	182	25	20.0	49.2	20.1
28	MT 0225	ND695/MCNEAL	185	24	15.8	47.5	19.9
29	MT 0228	MCNEAL/WA780	183	23	15.4	49.5	20.2
30	MT 0234	ERNEST/ND695	179	25	19.7	51.0	19.3
31	MT 0237	GRANDIN/WA78	181	25	17.3	50.6	19.9
32	MT 0238	MT8808/MT9653	179	28	16.1	51.1	19.4
33	MT 0244	MT8808/WA7802	183	25	16.3	48.3	20.0
34	MT 0245	MT9433/ND695	183	25	15.7	48.5	20.3
35	MT 0247	MT9433/ND695	180	27	19.6	53.6	19.6
36	MT 0248	ND695/MT9433	182	24	18.5	49.6	19.7
37	MT 0249	ND695/MT9433	181	25	18.6	50.3	19.9
38	MT 0252	ND695/MT9433	183	24	16.3	55.3	19.8
39	MT 0253	MT9542/ND695	185	25	14.0	49.0	19.2
40	MT 0255	MT9755/WA7802	181	26	19.1	49.9	19.6
41	MT 0260	MT9653/REEDEI	185	26	18.3	50.6	19.2

Table 1continued 2003 Spring Wheat Advanced Yield Trial.

ENTRY	ID	PEDIGREE	Head Date	Plant Height	Grain Yield	Test Weight	Grain Protein
			d of Y	"	bu/a	lbs/bu	%
42	MT 0261	ND695/MT9653	182	25	15.9	48.8	19.9
43	MT 0265	ND695/MT9755	180	25	15.7	46.8	20.2
44	MT 0266	ND695/MT9755	180	25	16.9	47.1	19.5
45	MCNB	MCNEAL LARGE	184	25	18.7	48.5	19.9
46	PI612605	MTHW9420	182	25	19.9	47.4	20.0
47	PI619086	EXPLORER	179	25	17.1	49.0	20.5
48	MTHW99	MT9311/MTHW9	182	26	16.9	51.1	19.7
49	MTHW00	MTHW9520/MTH	181	25	17.7	47.1	20.1
50	MTHW02	ID377S/MTHW9	181	26	17.6	49.8	20.2
51	MTHW02	ID377S/MTHW9	178	24	18.4	49.8	20.1
52	MTHW02	ID377S/MTHW9	180	26	15.5	50.7	19.8
53	MTHW02	MTHW9427/MT9	182	25	16.7	47.1	19.9
54	GM40004	BR 7030	181	25	18.3	50.0	19.8
55	GM40019	PLATA	181	23	18.5	46.4	19.1
56	GM40020	BLANCA GRAND	177	25	18.7	49.8	19.0
57	BZ996472	BZ992-634/GOLI	181	25	19.1	53.4	18.0
58	BZ998447	SPILLMAN/906R	180	25	21.2	47.0	19.8
59	BZ996434	BORDER/CONA	181	23	14.8	51.2	19.6
60	AGRIPRC	NORPRO	183	24	13.8	47.7	19.7
61	AGRIPRC	KNUDSON	183	24	16.4	52.8	18.2
62	SX1501B	SEEDEX SX150	188	20	14.9	50.2	19.7
63	SX1502B	SEEDEX SX150	185	25	16.6	48.2	20.2
64	MT 9955	MCNEAL/KS27//	183	25	16.4	47.4	20.5
MEAN =			182	24.86	17.03	49.77	19.8
F-RATIO (df=126)			27.66	1.149	1.66	12.29	
P-VALUE TRTS =			0	0.2524	0.0081	0	
CV (S/MEAN) % =			0.3494	8.313	15.96	1.964	
LSD(0.05 by t)=			1.028	3.339	4.394	1.579	

Seed Date: 22-Apr-03
Fertilizer: 10-10-10-5 w/seed 60 N topdress urea.
Harvest Date: 10-Aug

Table 2 2003 Spring wheat preliminary yield trial.
Exp3307 Central Agricultural Research Center. Moccasin, Montana.

Trt	ID	PEDIGREE	Head Date	Plant Height	Grain Yield	Test Weight	Grain Protein
			d of Y	"	bu/a	lbs/bu	%
24	MT 0324	MT9609/SCHOLAR	182.0	26.0	17.1	51.0	
75	PI574642	MCNEAL	183.5	27.0	19.6	49.2	
61	MT 0361	BZ991408/MTHW9420	180.5	27.0	16.6	49.9	
25	MT 0325	MT9609/SCHOLAR	182.5	23.0	17.0	52.7	
29	MT 0329	MT9609/SCHOLAR	183.0	23.5	15.6	51.4	
43	MT 0343	MT9754/SCHOLAR	182.5	24.5	16.3	50.0	
54	MT 0354	MT9806/SD3345	182.0	22.0	17.0	45.8	
48	MT 0348	MT9806/ERNEST	182.5	23.5	16.2	51.4	
50	MT 0350	MT9806/SD3345	181.0	24.5	19.5	50.0	
41	MT 0341	MT9719/MT9609	183.5	20.5	16.1	51.5	
18	MT 0318	MT9609/SCHOLAR	181.0	26.5	20.3	50.7	
53	MT 0353	MT9806/SD3345	182.0	29.5	20.3	47.2	
74	CI 13596	FORTUNA	182.5	27.5	22.3	51.3	
15	MT 0315	MT9609/SCHOLAR	183.0	29.0	19.4	49.7	
68	MT 0368	CAN1/MT8182//PI572717	180.0	26.5	19.0	51.9	
4	MT 0304	ERNEST/MCNEAL/KS27//MT9328	184.0	26.5	18.5	49.8	
42	MT 0342	MT9719/MT9715	183.0	25.0	20.9	50.7	
19	MT 0319	MT9609/SCHOLAR	181.0	26.0	19.0	52.9	
9	MT 0309	SCHOLAR/MT9754	182.5	27.5	18.6	53.1	
79	ND 695	REEDER	181.5	26.5	22.4	53.0	
10	MT 0310	SCHOLAR/MT9754	182.5	23.5	18.0	49.1	
31	MT 0331	MT9609/SCHOLAR	183.5	22.5	19.4	50.8	
59	MT 0359	MTHW9420/BZ991408	179.5	26.5	22.7	50.6	
81	MT 9929	MT9401/MT9328	181.5	22.0	21.3	52.1	
70	MT 0370	PI572717/BZ991408	181.5	25.5	16.7	52.0	
73	MT 0373	SWP965001/MCNEAL	182.0	25.5	21.0	49.3	
3	MT 0303	ERNEST/MCNEAL/KS27//MT9328	185.5	21.5	14.7	51.1	
52	MT 0352	MT9806/SD3345	182.0	21.5	16.0	47.2	
30	MT 0330	MT9609/SCHOLAR	183.5	21.0	16.9	50.8	
16	MT 0316	MT9609/SCHOLAR	183.0	27.0	16.5	49.9	
64	MT 0364	MTHW9711//CAN1/MT8182	181.0	21.0	15.3	50.4	
56	MT 0356	MTHW9420/BZ991408	180.0	25.5	18.2	54.1	
7	MT 0307	MCNEAL/MT9719	183.0	26.5	21.6	50.5	
38	MT 0338	MT9609/MT9808	183.5	24.5	18.8	45.6	
36	MT 0336	MT9609/MT9806	182.5	21.5	18.9	51.7	
2	MT 0302	ERNEST/MCNEAL/KS27//MT9328	184.5	23.5	15.9	50.5	
12	MT 0312	MT9609/SCHOLAR	183.5	24.5	17.4	52.0	
40	MT 0340	MT9715/MT9609	183.0	22.5	16.5	50.9	
57	MT 0357	MTHW9420/BZ991408	181.0	26.5	20.4	50.2	
80	MT 9874	OUTLOOK	183.5	23.0	19.7	48.3	
39	MT 0339	MT9715/SCHOLAR	182.0	24.0	15.8	46.8	
72	MT 0372	MCNEAL/KS27//MT9328/3/ERNEST	185.0	25.0	16.9	50.2	
21	MT 0321	MT9609/SCHOLAR	182.5	29.5	20.3	51.0	
14	MT 0314	MT9609/SCHOLAR	182.0	24.0	19.3	53.2	
5	MT 0305	MCNEAL/MT9719	183.5	25.0	21.8	52.1	
51	MT 0351	MT9806/SD3345	181.5	27.0	21.0	48.0	

Table 2 2003 Spring wheat preliminary yield trial. (continued)

Trt	ID	PEDIGREE	Head Date	Plant Height	Grain Yield	Test Weight
			d of Y	"	bu/a	lbs/bu
23	MT 0323	MT9609/SCHOLAR	182.5	24.5	16.9	47.4
71	MT 0371	MCNEAL/KS27//MT9328/3/ERNEST	183.0	25.5	17.6	52.7
76	PI592761	ERNEST	182.5	28.5	19.2	52.4
27	MT 0327	MT9609/SCHOLAR	179.5	30.0	22.1	53.7
33	MT 0333	MT9609/MT9806	181.0	23.0	16.6	49.4
45	MT 0345	MT9754/SCHOLAR	182.0	24.0	21.4	51.0
69	MT 0369	CAN1/MT8182//PI572717	180.0	26.0	20.3	53.2
32	MT 0332	MT9609/MT9719	186.0	21.5	15.9	49.7
65	MT 0365	CAN1/MT8182//MTHW9711	182.0	23.0	15.5	48.8
34	MT 0334	MT9606/MT9806	182.5	20.5	18.8	46.5
58	MT 0358	MTHW9420/BZ991408	181.0	22.5	18.0	51.8
20	MT 0320	MT9609/SCHOLAR	183.0	22.5	13.6	53.6
1	MT 0301	ERNEST/MCNEAL/KS27//MT9328	183.0	22.5	14.3	50.0
67	MT 0367	BZ991408/ID508	181.0	26.0	16.6	51.6
46	MT 0346	MT9754/SCHOLAR	183.5	25.5	15.3	48.3
49	MT 0349	MT9806/ERNEST	183.5	17.0	12.2	46.2
6	MT 0306	MCNEAL/MT9719	181.0	25.0	19.6	51.4
55	MT 0355	MTHW9420/BZ991408	181.0	21.5	16.1	49.4
22	MT 0322	MT9609/SCHOLAR	183.5	22.0	15.9	48.2
35	MT 0335	MT9609/MT9806	183.0	18.5	16.4	44.6
17	MT 0317	MT9609/SCHOLAR	184.0	25.0	17.3	51.6
47	MT 0347	MT9806/ERNEST	181.0	25.5	19.8	51.5
62	MT 0362	BZ991408/MTHW9711	181.5	24.0	18.1	51.9
60	MT 0360	BZ991408/MTHW9420	180.0	27.5	18.7	53.1
8	MT 0308	SCHOLAR/MT9754	181.0	26.5	15.0	53.0
63	MT 0363	BZ991408/MTHW9711	182.5	22.0	15.8	51.6
13	MT 0313	MT9609/SCHOLAR	183.0	25.0	16.8	49.4
26	MT 0326	MT9609/SCHOLAR	180.5	26.5	17.1	52.6
77	PI607557	SCHOLAR	184.0	26.0	18.9	52.5
66	MT 0366	BZ991408/ID508	181.5	26.5	22.4	53.4
11	MT 0311	SCHOLAR/MT9754	181.5	26.0	19.1	52.8
78	PI612605	MTHW9420	181.0	24.5	20.8	48.5
28	MT 0328	MT9609/SCHOLAR	182.5	25.5	18.0	50.4
44	MT 0344	MT9754/SCHOLAR	183.5	24.0	21.2	50.7
37	MT 0337	MT9609/MT9808	183.0	22.5	18.7	48.9
NO. CASES READ			243.0	243.0	243.0	243.0
OVERALL MEAN			182.3	24.6	18.2	50.5
F-RA1df=80			7.3	1.5	1.3	10.2
P-VALUE TRTS			0.0	0.0	0.1	0.0
CV (S/MEAN) %			0.4	11.8	19.4	1.8
LSD(0.05 by t)			1.4	5.7	5.7	1.8

Seed Date: 22-Apr-03
Fertilizer: 10-10-10-5 w/seed 60 N topdress urea.
Harvest Date: 10-Aug