

PROJECT TITLE: Off-station spring wheat variety evaluations in eastern Montana - 2005

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PROJECT PERSONNEL:

County	Producers	CES Agents
Daniels, dryland	Bobbie Roos	Bobbie Roos
McCone, dryland	Victor Wagner	Ken Nelson
Roosevelt, dryland	Mark Swank	Gina Snyder
Sheridan, dryland	Max Aasheim	Terry Angvick
Valley, dryland	Bill Lauckner	Verlin Koenig
Valley, irrigated	Alisha (Zeller) & Cole Sibley	Verlin Koenig
Wibaux, dryland	David Maus	Dave Bertelsen

OBJECTIVE: To evaluate varieties of spring wheat under irrigated and dryland conditions at various sites in eastern Montana.

RESULTS: Summaries of yields, test weights, heights and protein contents across all sites are shown in Tables 1-4. Experimental lines MT0245 and MT0260 yielded most across dryland sites (Table 1). Reeder yielded most at the irrigated site (Table 1).

McCone County (dryland): Performance and relative values of yield, test weight and protein of spring wheat varieties at Circle are shown in Tables 5-8. Reeder had greatest economic return.

Wibaux County (dryland): Performance and relative values of yield, test weight and protein of spring wheat varieties at Wibaux are shown in Tables 9-12. Freyr had greatest economic return.

Roosevelt County (dryland): Performance and relative values of yield, test weight and protein of spring wheat varieties at Poplar are shown in Tables 13-16. MT0260 had greatest economic return.

Sheridan County (dryland): Performance and relative values of yield, test weight and protein of spring wheat varieties at Reserve are shown in Tables 17-20. MT0245 had greatest economic return.

Valley County (dryland): Performances and relative values of yield, test weight and protein of spring wheat varieties at Nashua are shown in Table 21-24. MT0260 had greatest economic return.

Daniels County (dryland): Performance and relative values of yield, test weight and protein of spring wheat varieties at Scobey are shown in Tables 25-28. Outlook had greatest economic return. MTHW0202 (hard white wheat) yielded most.

Sheridan County (irrigated): Performance and relative values of yield, test weight and protein of spring wheat varieties at Dagmar are shown in Table 29-32. Reeder had greatest economic return.

SUMMARY: Off-station yield trials are conducted at several sites in eastern Montana. All experiments reported under this project are of the replicated small plot type. These trials provide important information about performance of experimental lines and varieties from Montana State University, other state universities, and private companies. Regional spring wheat producers make decisions on varieties to grow based on data from these trials.

FUTURE PLANS: Off-station spring wheat yield trials will continue indefinitely. Expansion to other locations in future years is possible.

Table 1. Summary of spring wheat yields in bu/acre at seven off-station sites in eastern Montana, 2005.

Variety	Circle, dryland recrop	Wibaux, dryland fallow	Poplar, dryland fallow	Reserve, dryland recrop	Nashua, dryland fallow	Scobey, dryland fallow	dryland average	Dagmar, sprinkle irrigated
MT0260	30.4	41.3	48.2	34.0	68.8	13.5	39.4	40.0
MT0245	29.0	44.4	45.2	40.5	48.6	16.6	37.4	40.6
Reeder	36.2	43.2	44.9	33.7	50.4	15.2	37.3	41.2
Outlook	35.2	38.9	42.9	30.6	58.0	17.2	37.1	33.1
Freyr	30.3	44.9	46.3	31.3	57.1	12.4	37.0	36.9
Alsen	32.1	40.8	43.9	29.6	53.2	13.9	35.6	38.7
Norpro	30.6	37.7	43.6	30.8	59.3	11.2	35.5	40.4
MT0266	27.0	43.8	46.4	29.6	52.3	12.1	35.2	34.8
McNeal	30.5	40.8	41.9	30.8	49.0	16.2	34.9	38.1
Glenn	27.5	39.5	42.0	28.4	57.7	13.7	34.8	34.4
Knudson	30.7	41.7	43.9	26.0	52.7	12.4	34.6	35.7
MTHW0202	23.1	44.3	43.3	28.6	45.9	17.8	33.8	33.3
Granite	28.8	40.6	38.8	30.9	49.2	11.3	33.3	32.5
Scholar	28.7	31.7	39.2	28.1	54.2	16.6	33.1	36.8
Steele ND	27.8	44.2	40.4	28.8	40.4	13.0	32.4	37.1
Choteau	25.3	38.8	42.7	25.1	47.7	12.4	32.0	40.1
Hanna	22.3	38.6	41.5	28.1	47.2	12.8	31.8	31.5
Dapps	23.0	34.0	39.4	23.7	48.9	12.9	30.3	34.0
site average	28.8	40.5	43.0	29.0	52.3	14.0		36.6
probability	0.002	<0.001	0.007	0.001	0.011	0.005		<0.001
CV (S/Mean)	13.1	4.6	6.5	11.9	13.4	15.6		7.2
CV(SE/Mean)	7.6	2.6	3.7	6.9	7.7	9.0		4.2
LSD 0.05	6.3	3.1	4.6	5.9	11.6	3.6		4.4

Table 2. Summary of spring wheat test weights in lb/bu at seven off-station sites in eastern Montana, 2005.

Variety	Circle, dryland recrop	Wibaux, dryland fallow	Poplar, dryland fallow	Reserve, dryland recrop	Nashua, dryland fallow	Scobey, dryland fallow	dryland average	Dagmar, sprinkle irrigated
Glenn	62.3	61.8	60.3	62.7	63.7	65.5	62.7	61.7
Granite	62.7	61.0	61.2	63.2	63.3	64.8	62.7	62.5
Alsen	62.2	60.2	58.5	61.8	62.0	63.7	61.4	60.7
Steele ND	62.0	59.3	56.8	62.3	62.3	64.3	61.2	59.5
Freyr	62.0	59.2	59.2	61.3	61.2	63.7	61.1	59.7
MT0260	62.5	58.7	58.0	62.5	60.2	63.8	60.9	60.7
Scholar	61.5	58.2	58.5	61.5	61.7	63.4	60.8	59.5
Reeder	61.7	58.5	57.7	61.7	61.5	63.2	60.7	59.3
MTHW0202	60.2	58.8	57.7	61.8	61.7	63.0	60.5	57.5
Hanna	60.5	59.5	59.0	61.7	59.5	62.7	60.5	60.5
Knudson	61.2	58.3	58.0	61.7	60.7	62.8	60.4	59.2
Norpro	61.7	57.2	55.8	62.3	61.2	63.8	60.3	59.2
MT0245	61.3	58.0	57.0	60.5	60.7	63.0	60.1	58.5
Dapps	60.3	58.7	57.7	60.7	60.3	62.2	60.0	58.7
Choteau	60.5	57.7	56.5	60.8	60.7	62.7	59.8	57.5
McNeal	59.7	56.8	56.7	61.3	61.0	62.0	59.6	58.2
Outlook	59.5	57.8	57.0	60.3	60.5	62.2	59.6	57.8
MT0266	58.0	54.8	55.3	57.0	57.0	60.3	57.1	52.7
site average	61.1	58.6	57.8	61.4	61.1	63.2		59.1
probability	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001
CV (S/Mean)	0.9	1.4	1.0	0.8	1.8	0.7		1.1
CV(SE/Mean)	0.5	0.8	0.6	0.5	1.1	0.4		0.6
LSD 0.05	0.9	1.3	1.0	0.8	1.9	0.8		1.1

Table 3. Summary of spring wheat heights in inches at six dryland off-station sites in eastern Montana, 2005.

Variety	Circle, dryland recrop	Wibaux, dryland fallow	Poplar, dryland fallow	Reserve, dryland recrop	Nashua, dryland fallow	Scobey, dryland fallow	dryland average	Dagmar, sprinkle irrigated
Hanna	31.4	35.8	36.8	28.0	37.8	21.8	31.9	32.5
Scholar	29.9	34.4	34.3	29.0	36.9	25.8	31.7	34.7
Dapps	27.6	35.7	36.2	28.0	37.1	21.8	31.1	31.7
Freyr	29.1	32.4	32.7	27.0	34.9	22.5	29.8	28.8
Glenn	27.3	33.6	32.8	25.5	34.3	24.8	29.7	31.2
McNeal	27.6	32.0	30.8	27.3	33.2	23.8	29.1	29.3
Outlook	27.7	31.1	31.8	26.8	32.0	23.7	28.9	29.8
MT0260	24.8	32.0	30.3	28.7	34.9	22.0	28.8	29.2
Steele ND	27.8	32.2	32.5	25.8	33.0	21.2	28.7	30.5
Reeder	25.2	32.0	31.8	27.2	29.5	22.3	28.0	28.0
Alsen	26.9	31.8	31.2	23.3	32.6	20.5	27.7	28.0
MT0245	25.2	32.4	30.2	25.7	29.8	22.5	27.6	28.8
MT0266	26.0	30.6	31.5	25.2	31.1	21.0	27.6	28.0
Granite	23.9	31.1	30.7	26.3	31.5	20.3	27.3	27.7
MTHW0202	26.1	29.8	29.7	24.2	30.7	22.5	27.2	27.2
Knudson	24.0	31.4	30.0	23.3	28.6	21.2	26.4	27.3
Choteau	23.9	30.7	29.5	22.7	30.1	20.2	26.2	26.5
Norpro	24.3	29.2	27.5	22.7	30.5	21.3	25.9	25.7
site average	26.6	32.1	31.7	25.9	32.7	22.2		29.2
probability	<0.001	<0.001	<0.001	<0.001	<0.001	0.596		<0.001
CV (S/Mean)	5.6	4.2	4.4	7.0	7.0	12.8		6.0
CV(SE/Mean)	3.2	2.4	2.5	4.0	4.1	4.7		3.5
LSD 0.05	2.5	2.2	2.3	3.0	3.8	ns		2.9

Table 4. Summary of spring wheat protein contents in percent at seven off-station sites in eastern Montana, 2005.

Variety	Circle, dryland recrop	Wibaux, dryland fallow	Poplar, dryland fallow	Reserve, dryland recrop	Nashua, dryland fallow	Scobey, dryland fallow	dryland average	Dagmar, sprinkle irrigated
Granite	13.53	17.69	19.37	16.96	13.74	12.00	15.55	13.78
Dapps	14.36	16.66	18.21	18.20	14.01	11.81	15.54	14.19
Glenn	13.79	16.66	18.05	16.95	14.48	11.55	15.25	13.11
Alsen	12.67	16.52	17.95	17.34	13.11	12.94	15.09	14.04
MT0266	12.67	16.43	17.70	15.86	13.18	12.21	14.68	14.95
Freyr	13.04	16.04	17.24	16.36	13.37	11.42	14.58	13.07
Reeder	13.69	16.78	18.22	15.06	12.00	11.58	14.56	13.70
Knudson	12.46	15.92	17.04	17.11	11.45	12.33	14.39	12.95
Choteau	13.16	16.15	17.38	16.10	11.96	11.28	14.34	12.88
Scholar	14.03	16.63	18.31	15.41	11.43	9.89	14.28	12.58
MT0245	11.81	16.69	17.49	15.02	12.42	12.11	14.26	13.89
Norpro	12.00	16.26	17.72	16.42	11.19	11.13	14.12	13.13
Steele ND	12.67	15.70	17.40	17.09	10.19	11.24	14.05	13.21
Hanna	12.76	15.64	16.86	15.46	12.57	10.16	13.91	12.24
McNeal	11.62	15.14	17.16	14.66	12.14	10.00	13.45	11.95
Outlook	12.38	14.62	17.01	14.38	11.33	10.94	13.44	12.62
MT0260	12.02	15.55	17.04	13.81	12.63	9.59	13.44	12.86
MTHW0202	12.07	15.36	17.28	14.86	11.10	9.77	13.41	13.28
site average	12.82	16.14	17.64	15.95	12.35	11.22		13.25
probability	0.148	<0.001	<0.001	<0.001	0.499	<0.001		<0.001
CV (S/Mean)	8.8	2.0	2.0	3.2	16.2	5.2		3.1
CV(SE/Mean)	5.1	1.2	1.1	1.9	9.3	3.0		1.8
LSD 0.05	ns	0.53	0.58	0.86	ns	0.96		0.68

Table 5. Performance of spring wheat grown under dryland continuous cropping conditions at Circle, MT. Planted: Apr 22, 2005 Harvested: Aug 16, 2005 Cooperator: Victor Wagner

Variety	Height, inches	Grain protein	Test weight	Yield, bu/acre	\$/acre ¹ +/- McNeal
Reeder	25.2	13.69	61.7	36.2	40.59
Outlook	27.7	12.38	59.5	35.2	25.72
Alsen	26.9	12.67	62.2	32.1	14.10
Freyr	29.1	13.04	62.0	30.3	7.64
Scholar	29.9	14.03	61.5	28.7	7.36
Knudson	24.0	12.46	61.2	30.7	6.06
Granite	23.9	13.53	62.7	28.8	4.38
Norpro	24.3	12.00	61.7	30.6	2.56
MT0260	24.8	12.02	62.5	30.4	1.71
Glenn	27.3	13.79	62.3	27.5	0.05
McNeal	27.6	11.62	59.7	30.5	0.00
Steele ND	27.8	12.67	62.0	27.8	-4.95
MT0245	25.2	11.81	61.3	29.0	-6.30
MT0266	26.0	12.67	58.0	27.0	-8.49
Choteau	23.9	13.16	60.5	25.3	-13.24
Dapps	27.6	14.36	60.3	23.0	-18.85
Hanna	31.4	12.76	60.5	22.3	-29.35
MTHW0202	26.1	12.07	60.2	23.1	*
average	26.6	12.82	61.1	28.8	
probability	<0.001	0.148	<0.001	0.002	
CV (S/Mean)	5.6	8.8	0.9	13.1	
CV(SE/Mean)	3.2	5.1	0.5	7.6	
LSD 0.05	2.5	ns	0.9	6.3	

¹ Wheat prices summarized by G. Carlson, NARC, Havre, MT, from 10-year (1995-2004) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee

*no price for white wheat

Table 6. Relative yielding abilities of spring wheat varieties as compared to McNeal when grown under dryland conditions in McCone County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Reeder	38.5	16.4	26.1	32.4	36.2	29.9	114.5
Outlook	40.5	13.9	26.6	33.0	35.2	29.8	114.2
Scholar	33.0	17.9	25.5	33.6	28.7	27.7	106.1
MT0245	--	--	--	34.2	29.0	31.6	102.6
Knudson	--	--	--	--	30.7	30.7	100.7
McNeal	33.0	13.2	22.9	31.1	30.5	26.1	100.0
MT0260	--	--	--	--	30.4	30.4	99.7
Alsen	27.1	15.7	--	--	32.1	25.0	97.7
Norpro	--	--	--	29.0	30.6	29.8	96.8
MT0266	--	--	--	31.9	27.0	29.5	95.6
Freyr	--	--	--	28.4	30.3	29.4	95.3
Glenn	--	--	--	--	27.5	27.5	90.2
Steele ND	--	--	--	27.7	27.8	27.8	90.1
Granite	--	--	--	24.0	28.8	26.4	85.7
Choteau	25.2	9.1	23.5	28.7	25.3	22.4	85.5
Hanna	--	--	--	24.5	22.3	23.4	76.0
MTHW0202	--	--	--	--	23.1	23.1	75.7
Dapps	--	--	--	22.6	23.0	22.8	74.0

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety.

Table 7. Relative test weights of spring wheat varieties as compared to McNeal when grown under dryland conditions in McCone County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
MT0260	--	--	--	--	62.5	62.5	104.7
Granite	--	--	--	61.5	62.7	62.1	104.6
Alsen	64.6	61.2	--	--	62.2	62.7	104.5
Freyr	--	--	--	62.0	62.0	62.0	104.5
Glenn	--	--	--	--	62.3	62.3	104.4
Norpro	--	--	--	61.8	61.7	61.8	104.0
Scholar	63.0	61.4	61.2	61.0	61.5	61.6	104.0
Steele ND	--	--	--	61.3	62.0	61.7	103.9
Reeder	63.2	59.8	60.3	61.8	61.7	61.4	103.6
MT0245	--	--	--	61.3	61.3	61.3	103.3
Hanna	--	--	--	61.3	60.5	60.9	102.6
Knudson	--	--	--	--	61.2	61.2	102.5
Choteau	62.8	59.7	59.6	60.8	60.5	60.7	102.4
Dapps	--	--	--	60.6	60.3	60.5	101.9
MTHW0202	--	--	--	--	60.2	60.2	100.8
Outlook	61.0	58.3	57.7	59.8	59.5	59.3	100.0
McNeal	61.5	58.7	57.3	59.0	59.7	59.2	100.0
MT0266	--	--	--	58.5	58.0	58.3	98.1

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety.

Table 8. Relative protein contents of spring wheat varieties as compared to McNeal when grown under dryland conditions in McCone County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Dapps	--	--	--	15.9	14.4	15.2	123.2
Glenn	--	--	--	--	13.8	13.8	119.0
Granite	--	--	--	15.5	13.5	14.5	117.9
Alsen	12.4	11.9	--	--	12.7	12.3	117.1
Reeder	10.8	12.7	15.7	14.1	13.7	13.4	112.6
MT0266	--	--	--	14.8	12.7	13.8	111.8
Steele ND	--	--	--	14.8	12.7	13.8	111.8
Scholar	9.9	11.8	15.9	14.5	14.0	13.2	111.1
Choteau	10.1	12.2	15.1	14.2	13.2	13.0	108.9
Hanna	--	--	--	13.9	12.8	13.4	108.5
Norpro	--	--	--	14.6	12.0	13.3	108.1
Freyr	--	--	--	13.6	13.0	13.3	108.1
Knudson	--	--	--	--	12.5	12.5	107.8
MTHW0202	--	--	--	--	12.1	12.1	104.3
MT0245	--	--	--	13.8	11.8	12.8	104.1
Outlook	10.1	11.5	14.9	12.9	12.4	12.4	103.9
MT0260	--	--	--	--	12.0	12.0	103.4
McNeal	8.8	11.2	14.9	13.0	11.6	11.9	100.0

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety.

Table 9. Performance of spring wheat grown under dryland conditions at Wibaux, MT.
 Planted: Apr 25, 2005 Harvested: Aug 31, 2005 Cooperator: David Maus

Variety	Height, inches	Grain protein	Test weight	Yield, bu/acre	\$/acre ¹ +/- McNeal
Freyr	32.4	16.04	59.2	44.9	19.92
MT0245	32.4	16.69	58.0	44.4	17.49
Steele ND	32.2	15.70	59.3	44.2	16.52
MT0266	30.6	16.43	54.8	43.8	14.58
Reeder	32.0	16.78	58.5	43.2	11.66
Knudson	31.4	15.92	58.3	41.7	4.37
MT0260	32.0	15.55	58.7	41.3	2.43
McNeal	32.0	15.14	56.8	40.8	0.00
Alsen	31.8	16.52	60.2	40.8	0.00
Granite	31.1	17.69	61.0	40.6	-0.97
Glenn	33.6	16.66	61.8	39.5	-6.32
Choteau	30.7	16.15	57.7	38.8	-9.72
Hanna	35.8	15.64	59.5	38.6	-10.69
Outlook	31.1	14.62	57.8	38.9	-11.96
Norpro	29.2	16.26	57.2	37.7	-15.07
Dapps	35.7	16.66	58.7	34.0	-33.05
Scholar	34.4	16.63	58.2	31.7	-44.23
MTHW0202	29.8	15.36	58.8	44.3	*
average	32.1	16.14	58.6	40.5	
probability	<0.001	<0.001	<0.001	<0.001	
CV (S/Mean)	4.2	2.0	1.4	4.6	
CV(SE/Mean)	2.4	1.2	0.8	2.6	
LSD 0.05	2.2	0.53	1.3	3.1	

¹ Wheat prices summarized by G. Carlson, NARC, Havre, MT, from 10-year (1995-2004) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee

*no price for white wheat

Table 10. Relative yielding abilities of spring wheat varieties as compared to McNeal when grown under dryland conditions in Wibaux County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Freyr	--	--	--	33.0	44.9	39.0	111.8
MT0245	--	--	--	31.7	44.4	38.1	109.2
MTHW0202	--	--	--	--	44.3	44.3	108.6
Reeder	49.4	30.8	20.6	32.2	43.2	35.2	107.8
Outlook	50.2	27.0	23.3	28.5	38.9	33.6	102.7
Knudson	--	--	--	--	41.7	41.7	102.2
MT0260	--	--	--	--	41.3	41.3	101.2
MT0266	--	--	--	26.2	43.8	35.0	100.4
McNeal	48.4	25.4	20.0	28.9	40.8	32.7	100.0
Granite	--	--	--	29.1	40.6	34.9	100.0
Alsen	43.7	29.2	--	--	40.8	37.9	99.2
Glenn	--	--	--	--	39.5	39.5	96.8
Hanna	--	--	--	27.0	38.6	32.8	94.1
Steele ND	--	--	--	21.2	44.2	32.7	93.8
Norpro	--	--	--	26.8	37.7	32.3	92.5
Dapps	--	--	--	29.4	34.0	31.7	91.0
Scholar	42.0	32.3	15.2	26.6	31.7	29.6	90.4
Choteau	38.3	25.0	14.7	25.8	38.8	28.5	87.2

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety.

Table 11. Relative test weights of spring wheat varieties as compared to McNeal when grown under dryland conditions in Wibaux County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Glenn	--	--	--	--	61.8	61.8	108.8
Granite	--	--	--	61.7	61.0	61.4	106.4
Scholar	61.7	60.2	58.1	59.9	58.2	59.6	104.4
Alsen	62.0	59.5	--	--	60.2	60.6	104.2
Freyr	--	--	--	60.5	59.2	59.9	103.8
Hanna	--	--	--	60.2	59.5	59.9	103.8
MTHW0202	--	--	--	--	58.8	58.8	103.5
MT0260	--	--	--	--	58.7	58.7	103.3
Steele ND	--	--	--	59.2	59.3	59.3	102.8
Knudson	--	--	--	--	58.3	58.3	102.6
Reeder	60.7	57.5	56.3	59.7	58.5	58.5	102.5
Dapps	--	--	--	58.8	58.7	58.8	101.9
Choteau	60.5	57.6	55.6	59.4	57.7	58.2	101.9
Norpro	--	--	--	59.3	57.2	58.3	101.0
MT0245	--	--	--	58.5	58.0	58.3	101.0
Outlook	59.2	57.0	54.3	58.7	57.8	57.4	100.5
McNeal	60.0	57.5	52.7	58.5	56.8	57.1	100.0
MT0266	--	--	--	56.5	54.8	55.7	96.5

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety.

Table 12. Relative protein contents of spring wheat varieties as compared to McNeal when grown under dryland conditions in Wibaux County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Granite	--	--	--	19.5	17.7	18.6	112.4
Glenn	--	--	--	--	16.7	16.7	110.6
Alsen	16.9	16.7	--	--	16.5	16.7	109.4
Dapps	--	--	--	19.3	16.7	18.0	108.8
MT0245	--	--	--	19.1	16.7	17.9	108.2
Reeder	16.3	17.1	19.0	19.1	16.8	17.7	106.3
MT0266	--	--	--	18.6	16.4	17.5	105.7
Knudson	--	--	--	--	15.9	15.9	105.3
Norpro	--	--	--	18.4	16.3	17.4	104.8
Freyr	--	--	--	18.5	16.0	17.3	104.2
MT0260	--	--	--	--	15.6	15.6	103.3
Scholar	15.0	16.2	18.7	19.2	16.6	17.1	103.1
Steele ND	--	--	--	18.4	15.7	17.1	103.0
MTHW0202	--	--	--	--	15.4	15.4	102.0
Hanna	--	--	--	17.7	15.6	16.7	100.6
McNeal	14.4	16.3	19.3	18.0	15.1	16.6	100.0
Choteau	14.8	15.6	17.5	18.4	16.2	16.5	99.3
Outlook	13.6	15.8	18.4	17.4	14.6	16.0	96.0

NOTE: Average proteins in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety.

Table 13. Performance of spring wheat grown under dryland conditions at Poplar, MT.
 Planted: May 2, 2005 Harvested: Sep 9, 2005 Cooperator: Mark Swank

Variety	Height, inches	Grain protein	Test weight	Yield, bu/acre	\$/acre ¹ +/- McNeal
MT0260	30.3	17.04	58.0	48.2	30.62
MT0266	31.5	17.70	55.3	46.4	21.87
Freyr	32.7	17.24	59.2	46.3	21.39
MT0245	30.2	17.49	57.0	45.2	16.04
Reeder	31.8	18.22	57.7	44.9	14.58
Alsen	31.2	17.95	58.5	43.9	9.72
Knudson	30.0	17.04	58.0	43.9	9.72
Norpro	27.5	17.72	55.8	43.6	8.27
Outlook	31.8	17.01	57.0	42.9	4.86
Choteau	29.5	17.38	56.5	42.7	3.89
Glenn	32.8	18.05	60.3	42.0	0.49
McNeal	30.8	17.16	56.7	41.9	0.00
Hanna	36.8	16.86	59.0	41.5	-1.94
Steele ND	32.5	17.40	56.8	40.4	-7.29
Dapps	36.2	18.21	57.7	39.4	-12.15
Scholar	34.3	18.31	58.5	39.2	-13.12
Granite	30.7	19.37	61.2	38.8	-15.06
MTHW0202	29.7	17.28	57.7	43.3	*
average	31.7	17.64	57.8	43.0	
probability	<0.001	<0.001	<0.001	0.007	
CV (S/Mean)	4.4	2.0	1.0	6.5	
CV(SE/Mean)	2.5	1.1	0.6	3.7	
LSD 0.05	2.3	0.58	1.0	4.6	

¹ Wheat prices summarized by G. Carlson, NARC, Havre, MT, from 10-year (1995-2004) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee

*no price for white wheat

Table 14. Relative yields of spring wheat varieties as compared to McNeal when grown under dryland conditions in Roosevelt County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
MT0260	--	--	--	--	48.2	48.2	115.0
Freyr	--	--	--	50.6	46.3	48.5	112.5
MT0266	--	--	--	49.7	46.4	48.1	111.6
Norpro	--	--	--	50.8	43.6	47.2	109.6
MT0245	--	--	--	48.3	45.2	46.8	108.6
Reeder	59.9	46.4	56.8	45.0	44.9	50.6	105.0
Knudson	--	--	--	--	43.9	43.9	104.8
Outlook	64.0	41.7	56.5	47.2	42.9	50.5	104.7
Hanna	--	--	--	48.2	41.5	44.9	104.2
MTHW0202	--	--	--	--	43.3	43.3	103.3
Alsen	59.4	38.0	--	--	43.9	47.1	102.8
Glenn	--	--	--	--	42.0	42.0	100.2
McNeal	58.5	37.1	59.3	44.2	41.9	48.2	100.0
Granite	--	--	--	46.9	38.8	42.9	99.5
Dapps	--	--	--	45.1	39.4	42.3	98.1
Scholar	61.6	37.8	53.0	42.6	39.2	46.8	97.2
Choteau	54.5	40.7	53.7	38.7	42.7	46.1	95.6
Steele ND	--	--	--	40.1	40.4	40.3	93.5

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety.

Table 15. Relative test weights of spring wheat varieties as compared to McNeal when grown under dryland conditions in Roosevelt County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Granite	--	--	--	64.5	61.2	62.9	106.6
Glenn	--	--	--	--	60.3	60.3	106.3
Alsen	64.5	61.3	--	--	58.5	61.4	106.1
Freyr	--	--	--	63.2	59.2	61.2	103.8
Reeder	63.7	60.5	62.2	62.7	57.7	61.4	103.8
Scholar	63.5	60.0	62.8	62.0	58.5	61.4	103.8
Hanna	--	--	--	62.2	59.0	60.6	102.8
MT0260	--	--	--	--	58.0	58.0	102.3
Knudson	--	--	--	--	58.0	58.0	102.3
Choteau	63.2	58.5	61.5	62.3	56.5	60.4	102.2
Dapps	--	--	--	62.5	57.7	60.1	102.0
MTHW0202	--	--	--	--	57.7	57.7	101.8
MT0245	--	--	--	62.2	57.0	59.6	101.1
Outlook	61.8	58.2	59.8	61.0	57.7	59.7	101.0
Norpro	--	--	--	63.2	55.8	59.5	100.9
Steele ND	--	--	--	61.8	56.8	59.3	100.6
McNeal	62.8	54.2	60.7	61.2	56.7	59.1	100.0
MT0266	--	--	--	59.8	55.3	57.6	97.6

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety.

Table 16. Relative protein contents of spring wheat varieties as compared to McNeal when grown under dryland conditions in Roosevelt County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Reeder	15.4	15.6	14.3	12.0	18.2	15.1	111.9
Granite	--	--	--	11.6	19.4	15.5	109.9
Alsen	14.7	15.6	--	--	18.0	16.1	109.8
Scholar	14.6	14.7	13.1	11.0	18.3	14.3	106.2
Dapps	--	--	--	11.7	18.2	15.0	106.0
MT0266	--	--	--	11.9	17.7	14.8	105.0
Glenn	--	--	--	--	18.0	18.0	104.7
MT0245	--	--	--	11.5	17.5	14.5	102.8
Choteau	12.9	14.5	13.3	11.2	17.4	13.9	102.7
MTHW0202	--	--	--	--	17.3	17.3	100.6
McNeal	12.9	13.9	12.5	11.0	17.2	13.5	100.0
Steele ND	--	--	--	10.8	17.4	14.1	100.0
Outlook	13.4	13.6	12.9	10.4	17.0	13.5	99.7
Freyr	--	--	--	10.8	17.2	14.0	99.3
MT0260	--	--	--	--	17.0	17.0	98.8
Knudson	--	--	--	--	17.0	17.0	98.8
Norpro	--	--	--	9.1	17.7	13.4	95.0
Hanna	--	--	--	9.7	16.9	13.3	94.3

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety.

Table 17. Performance of spring wheat grown under dryland conditions at Reserve, MT.
 Planted: May 4, 2005 Harvested: Sep 7, 2005 Cooperator: Max Aasheim

Variety	Height, inches	Grain protein	Test weight	Yield, bu/acre	\$/acre ¹ +/- McNeal
MT0245	25.7	15.02	60.5	40.5	49.30
Reeder	27.2	15.06	61.7	33.7	16.25
MT0260	28.7	13.81	62.5	34.0	10.91
Freyr	27.0	16.36	61.3	31.3	4.59
Granite	26.3	16.96	63.2	30.9	2.64
Norpro	22.7	16.42	62.3	30.8	2.16
McNeal	27.3	14.66	61.3	30.8	0.00
Outlook	26.8	14.38	60.3	30.6	-0.96
MT0266	25.2	15.86	57.0	29.6	-3.67
Alsen	23.3	17.34	61.8	29.6	-3.67
Steele ND	25.8	17.09	62.3	28.8	-7.56
Glenn	25.5	16.95	62.7	28.4	-9.51
Hanna	28.0	15.46	61.7	28.1	-10.96
Scholar	29.0	15.41	61.5	28.1	-10.96
Knudson	23.3	17.11	61.7	26.0	-21.17
Choteau	22.7	16.10	60.8	25.1	-25.54
Dapps	28.0	18.20	60.7	23.7	-32.35
MTHW0202	24.2	14.86	61.8	28.6	*
average	25.9	15.95	61.4	29.9	
probability	<0.001	<0.001	<0.001	0.001	
CV (S/Mean)	7.0	3.2	0.8	11.9	
CV(SE/Mean)	4.0	4.0	1.9	0.5	
LSD 0.05	7.6	3.0	0.86	0.8	

¹ Wheat prices summarized by G. Carlson, NARC, Havre, MT, from 10-year (1995-2004) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee

*no price for white wheat

Table 18. Relative yielding abilities of spring wheat varieties as compared to McNeal when grown under dryland conditions in Sheridan County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
MT0245	--	--	--	56.4	40.5	48.5	123.9
Outlook	44.2	39.6	41.9	53.5	30.6	42.0	111.1
Reeder	45.4	38.3	39.2	52.7	33.7	41.9	110.9
MT0260	--	--	--	--	34.0	34.0	110.4
MT0266	--	--	--	52.6	29.6	41.1	105.1
Freyr	--	--	--	50.8	31.3	41.1	105.0
Norpro	--	--	--	50.7	30.8	40.8	104.2
McNeal	44.5	28.2	37.9	47.4	30.8	37.8	100.0
Scholar	42.7	28.2	39.0	49.6	28.1	37.5	99.4
Choteau	41.8	35.4	38.5	44.5	25.1	37.1	98.1
Hanna	--	--	--	48.1	28.1	38.1	97.4
Alsen	33.1	36.7	--	--	29.6	33.1	96.0
Steele ND	--	--	--	45.8	28.8	37.3	95.4
MTHW0202	--	--	--	--	28.6	28.6	92.9
Glenn	--	--	--	--	28.4	28.4	92.2
Granite	--	--	--	40.8	30.9	35.9	91.7
Dapps	--	--	--	42.6	23.7	33.2	84.8
Knudson	--	--	--	--	26.0	26.0	84.4

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety.

Table 19. Relative test weights of spring wheat varieties as compared to McNeal when grown under dryland conditions in Sheridan County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Granite	--	--	--	63.0	63.2	63.1	103.4
Alsen	64.7	60.8	--	--	61.8	62.4	102.7
Reeder	63.7	59.7	60.7	62.2	61.7	61.6	102.5
Glenn	--	--	--	--	62.7	62.7	102.3
Scholar	63.5	59.2	60.3	62.2	61.5	61.3	102.0
MT0260	--	--	--	--	62.5	62.5	102.0
Norpro	--	--	--	61.5	62.3	61.9	101.4
Steele ND	--	--	--	61.5	62.3	61.9	101.4
Hanna	--	--	--	61.8	61.7	61.8	101.1
Freyr	--	--	--	61.8	61.3	61.6	100.8
MTHW0202	--	--	--	--	61.8	61.8	100.8
Knudson	--	--	--	--	61.7	61.7	100.7
Choteau	63.2	58.8	59.2	60.0	60.8	60.4	100.5
McNeal	62.7	58.3	57.5	60.8	61.3	60.1	100.0
Outlook	61.7	58.5	57.8	60.7	60.3	59.8	99.5
MT0245	--	--	--	60.8	60.5	60.7	99.3
Dapps	--	--	--	60.2	60.7	60.5	99.0
MT0266	--	--	--	57.5	57.0	57.3	93.8

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety.

Table 20. Relative protein contents of spring wheat varieties as compared to McNeal when grown under dryland conditions in Sheridan County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Dapps	--	--	--	14.8	18.2	16.5	120.4
Granite	--	--	--	14.9	17.0	16.0	116.4
Knudson	--	--	--	--	17.1	17.1	116.3
Glenn	--	--	--	--	17.0	17.0	115.6
Alsen	15.8	14.9	--	--	17.3	16.0	112.7
MT0266	--	--	--	14.7	15.9	15.3	111.7
Steele ND	--	--	--	13.3	17.1	15.2	110.9
Norpro	--	--	--	14.0	16.4	15.2	110.9
Freyr	--	--	--	13.4	16.4	14.9	108.8
MT0245	--	--	--	14.2	15.0	14.6	106.6
Scholar	15.6	14.5	17.1	13.7	15.4	15.3	105.8
Reeder	15.8	14.1	17.2	13.7	15.1	15.2	105.3
Hanna	--	--	--	13.0	15.5	14.3	104.0
Choteau	14.4	13.9	16.8	13.5	16.1	14.9	103.6
MTHW0202	--	--	--	--	14.9	14.9	101.4
McNeal	14.8	13.1	16.8	12.7	14.7	14.4	100.0
Outlook	14.8	13.2	16.4	12.6	14.4	14.3	99.0
MT0260	--	--	--	--	13.8	13.8	93.9

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety.

Table 21. Performance of spring wheat grown under dryland conditions at Nashua, MT.
 Planted: Apr 17, 2005 Harvested: Aug 18, 2005 Cooperator: Bill Lauckner

Variety	Height, inches	Grain protein	Test weight	Yield, bu/acre	\$/acre ¹ +/- McNeal
MT0260	34.9	12.63	60.2	68.8	88.98
Glenn	34.3	14.48	63.7	57.7	64.70
Freyr	34.9	13.37	61.2	57.1	50.98
Norpro	30.5	11.19	61.2	59.3	37.38
Outlook	32.0	11.33	60.5	58.0	31.92
Alsen	32.6	13.11	62.0	53.2	26.66
MT0266	31.1	13.18	57.0	52.3	25.76
Dapps	37.1	14.01	60.3	48.9	19.13
Granite	31.5	13.74	63.3	49.2	17.59
Scholar	36.9	11.43	61.7	54.2	15.96
Knudson	28.6	11.45	60.7	52.7	9.66
Reeder	29.5	12.00	61.5	50.4	3.44
MT0245	29.8	12.42	60.7	48.6	0.70
McNeal	33.2	12.14	61.0	49.0	0.00
Hanna	37.8	12.57	59.5	47.2	-5.42
Choteau	30.1	11.96	60.7	47.7	-8.00
Steele ND	33.0	10.19	62.3	40.4	-42.00
MTHW0202	30.7	11.10	61.7	45.9	*
average	32.7	12.35	61.1	52.3	
probability	<0.001	0.499	<0.001	0.011	
CV (S/Mean)	7.0	16.2	1.8	13.4	
CV(SE/Mean)	4.1	9.3	1.1	7.7	
LSD 0.05	3.8	ns	1.9	11.6	

¹ Wheat prices summarized by G. Carlson, NARC, Havre, MT, from 10-year (1995-2004) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee

*no price for white wheat

Table 22. Relative yielding abilities of spring wheat varieties as compared to McNeal when grown under dryland conditions in Valley County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
MT0260	--	--	--	--	68.8	68.8	140.4
Glenn	--	--	--	--	57.7	57.7	117.8
MT0266	--	--	--	64.1	52.3	58.2	112.7
Freyr	--	--	--	58.5	57.1	57.8	111.9
Norpro	--	--	--	55.9	59.3	57.6	111.5
Alsen	68.7	49.2	--	--	53.2	57.0	108.4
MT0245	--	--	--	63.2	48.6	55.9	108.2
Reeder	70.0	51.6	39.7	59.2	50.4	54.2	107.7
Knudson	--	--	--	--	52.7	52.7	107.6
Outlook	56.9	48.7	42.7	61.7	58.0	53.6	106.5
Scholar	62.2	46.7	37.6	52.9	54.2	50.7	100.8
McNeal	63.3	45.6	39.4	54.3	49.0	50.3	100.0
Granite	--	--	--	49.2	49.2	49.2	95.3
Choteau	64.1	42.3	33.6	48.1	47.7	47.2	93.7
MTHW0202	--	--	--	--	45.9	45.9	93.7
Dapps	--	--	--	45.9	48.9	47.4	91.8
Hanna	--	--	--	46.4	47.2	46.8	90.6
Steele ND	--	--	--	51.2	40.4	45.8	88.7

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety.

Table 23. Relative test weights of spring wheat varieties as compared to McNeal when grown under dryland conditions in Valley County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Glenn	--	--	--	--	63.7	63.7	104.4
Granite	--	--	--	63.0	63.3	63.2	103.5
Alsen	63.7	61.5	--	--	62.0	62.4	102.7
Scholar	63.2	60.5	60.2	61.7	61.7	61.5	102.3
Reeder	62.7	60.0	58.2	62.2	61.5	60.9	101.4
Freyr	--	--	--	62.5	61.2	61.9	101.4
MTHW0202	--	--	--	--	61.7	61.7	101.1
Steele ND	--	--	--	61.0	62.3	61.7	101.1
Choteau	62.8	59.0	59.0	61.3	60.7	60.6	100.8
Norpro	--	--	--	61.3	61.2	61.3	100.4
McNeal	61.5	59.7	57.2	61.0	61.0	60.1	100.0
Hanna	--	--	--	62.0	59.5	60.8	99.6
Knudson	--	--	--	--	60.7	60.7	99.5
MT0245	--	--	--	60.3	60.7	60.5	99.2
Outlook	61.0	58.8	57.2	59.7	60.5	59.4	98.9
Dapps	--	--	--	60.2	60.3	60.3	98.8
MT0260	--	--	--	--	60.2	60.2	98.7
MT0266	--	--	--	58.3	57.0	57.7	94.5

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety.

Table 24. Relative protein contents of spring wheat varieties as compared to McNeal when grown under dryland conditions in Valley County in cooperation with CES.

Cultivar	2001	2002	2003	2004	2005	Ave	as % of McNeal
Dapps	--	--	--	15.4	14.0	14.7	124.1
Granite	--	--	--	15.0	13.7	14.4	121.1
Glenn	--	--	--	--	14.5	14.5	119.8
MT0245	--	--	--	15.6	12.4	14.0	118.1
MT0266	--	--	--	14.8	13.2	14.0	118.1
Reeder	13.8	14.1	18.0	13.4	12.0	14.3	113.7
Freyr	--	--	--	13.2	13.4	13.3	112.2
Alsen	13.9	12.0	--	--	13.1	13.0	109.2
Hanna	--	--	--	12.4	12.6	12.5	105.5
Scholar	13.4	12.6	16.1	12.5	11.4	13.2	105.3
MT0260	--	--	--	--	12.6	12.6	104.1
Choteau	11.9	12.4	15.7	13.2	12.0	13.0	104.0
Outlook	11.6	12.3	15.5	12.8	11.3	12.7	101.3
Steele ND	--	--	--	13.6	10.2	11.9	100.4
McNeal	12.6	11.0	15.4	11.6	12.1	12.5	100.0
Norpro	--	--	--	12.2	11.2	11.7	98.7
Knudson	--	--	--	--	11.4	11.4	94.2
MTHW0202	--	--	--	--	11.1	11.1	91.7

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety.

Table 25. Performance of spring wheat grown under dryland conditions at Scobey, MT.
 Planted: May 2, 2005 Harvested: Sep 8, 2005 Cooperator: Bobbie Roos

Variety	Height, inches	Grain protein	Test Weight	Yield Bu/acre	\$/acre ¹ +/- McNeal
Outlook	23.7	10.94	62.2	17.2	4.20
MT0245	22.5	12.11	63.0	16.6	2.84
Scholar	25.8	9.89	63.4	16.6	1.68
McNeal	23.8	10.00	62.0	16.2	0.00
Reeder	22.3	11.58	63.2	15.2	-4.20
Alsen	20.5	12.94	63.7	13.9	-5.77
Glenn	24.8	11.55	65.5	13.7	-10.50
MT0260	22.0	9.59	63.8	13.5	-11.34
Steele ND	21.2	11.24	64.3	13.0	-13.44
Dapps	21.8	11.81	62.2	12.9	-13.86
Hanna	21.8	10.16	62.7	12.8	-14.28
Knudson	21.2	12.33	62.8	12.4	-14.47
MT0266	21.0	12.21	60.3	12.1	-15.77
Choteau	20.2	11.28	62.7	12.4	-15.96
Freyr	22.5	11.42	63.7	12.4	-15.96
Granite	20.3	12.00	64.8	11.3	-19.79
Norpro	21.3	11.13	63.8	11.2	-21.00
MTHW0202	22.5	9.77	63.0	17.8	*
average	22.2	11.22	63.2	14.0	
probability	0.596	<0.001	<0.001	0.005	
CV (S/Mean)	12.8	5.2	0.7	15.6	
CV(SE/Mean)	7.4	3.0	0.4	9.0	
LSD 0.05	ns	0.96	0.8	3.6	

¹ Wheat prices summarized by G. Carlson, NARC, Havre, MT, from 10-year (1995-2004) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee

*no price for white wheat

Table 26. Relative yields of spring wheat varieties as compared to McNeal when grown under dryland conditions in Daniels County in cooperation with CES.

Variety	2001	2002	2003	2004	2005	average	As % of McNeal
MTHW0202	--	--	--	--	17.8	17.8	109.9
Outlook	26.9	32.0	37.7	42.3	17.2	31.2	101.8
McNeal	28.7	29.4	31.6	47.4	16.2	30.7	100.0
Scholar	28.2	30.6	30.4	43.8	16.6	29.9	97.6
Reeder	25.0	31.3	35.4	35.9	15.2	28.6	93.2
MT0245	--	--	--	41.7	16.6	29.2	91.7
MT0266	--	--	--	45.2	12.1	28.7	90.1
Alsen	18.2	34.0	--	--	13.9	22.0	89.0
Glenn	--	--	--	--	13.7	13.7	84.6
Hanna	--	--	--	40.9	12.8	26.9	84.4
MT0260	--	--	--	--	13.5	13.5	83.3
Freyr	--	--	--	40.1	12.4	26.3	82.5
Choteau	20.8	23.1	28.2	39.6	12.4	24.8	81.0
Knudson	--	--	--	--	12.4	12.4	76.5
Norpro	--	--	--	37.1	11.2	24.2	75.9
Granite	--	--	--	34.2	11.3	22.8	71.5
Dapps	--	--	--	31.8	12.9	22.4	70.3
Steele ND	--	--	--	29.5	13.0	21.3	66.8

NOTE: Average yields in this summary should not be compared to each other since they are not always grown in the same years. Compare yields only to the check variety.

Table 27. Relative test weights of spring wheat varieties as compared to McNeal when grown under dryland conditions in Daniels County in cooperation with CES.

Variety	2001	2002	2003	2004	2005	average	As % of McNeal
Glenn	--	--	--	--	65.5	65.5	105.6
Alsen	63.8	62.5	--	--	63.7	63.3	103.7
Steele ND	--	--	--	63.3	64.3	63.8	103.3
MT0260	--	--	--	--	63.8	63.8	102.9
Granite	--	--	--	61.7	64.8	63.3	102.4
Reeder	63.4	61.3	63.0	62.3	63.2	62.6	102.3
Scholar	62.6	59.8	62.7	63.0	63.4	62.3	101.7
Freyr	--	--	--	61.8	63.7	62.8	101.6
MTHW0202	--	--	--	--	63.0	63.0	101.6
Choteau	63.4	60.8	62.3	61.7	62.7	62.2	101.5
Norpro	--	--	--	61.5	63.8	62.7	101.5
Hanna	--	--	--	62.5	62.7	62.6	101.4
Knudson	--	--	--	--	62.8	62.8	101.3
MT0245	--	--	--	61.7	63.0	62.4	101.0
McNeal	61.4	59.8	61.5	61.5	62.0	61.2	100.0
Outlook	61.8	59.7	61.3	60.5	62.2	61.1	99.8
Dapps	--	--	--	61.0	62.2	61.6	99.8
MT0266	--	--	--	61.8	60.3	61.1	98.9

NOTE: Average yields in this summary should not be compared to each other since they are not always grown in the same years. Compare yields only to the check variety.

Table 28. Relative protein contents of spring wheat varieties as compared to McNeal when grown under dryland conditions in Daniels County in cooperation with CES.

Variety	2001	2002	2003	2004	2005	average	As % of McNeal
Knudson	--	--	--	--	12.3	12.3	123.0
Dapps	--	--	--	13.3	11.8	12.6	118.4
Granite	--	--	--	12.9	12.0	12.5	117.5
Glenn	--	--	--	--	11.6	11.6	116.0
Reeder	11.7	12.4	14.7	13.4	11.6	12.8	115.4
MT0266	--	--	--	12.2	12.2	12.2	115.1
Alsen	9.8	12.2	--	--	12.9	11.6	114.4
Freyr	--	--	--	12.2	11.4	11.8	111.3
MT0245	--	--	--	11.5	12.1	11.8	111.3
Steele ND	--	--	--	11.7	11.2	11.5	108.0
Choteau	8.8	12.3	13.9	11.2	11.3	11.5	104.0
Norpro	--	--	--	10.8	11.1	11.0	103.3
Outlook	9.7	11.4	13.1	12.0	10.9	11.4	103.3
Scholar	10.3	11.6	13.4	10.5	9.9	11.1	100.7
Hanna	--	--	--	11.1	10.2	10.7	100.5
McNeal	9.8	10.7	13.6	11.2	10.0	11.1	100.0
MTHW0202	--	--	--	--	9.8	9.8	98.0
MT0260	--	--	--	--	9.6	9.6	96.0

NOTE: Average yields in this summary should not be compared to each other since they are not always grown in the same years. Compare yields only to the check variety.

Table 29. Performance of spring wheat grown under irrigated conditions at Dagmar, MT.
 Planted: May 4, 2005 Harvested: Sep 7, 2005 Cooperator: Steve Brekke

Variety	Height, inches	Grain protein	Test weight	Yield, bu/acre	\$/acre ¹ +/- McNeal
Reeder	28.0	13.70	59.3	41.2	29.30
MT0245	28.8	13.89	58.5	40.6	28.94
Norpro	25.7	13.13	59.2	40.4	20.73
Alsen	28.0	14.04	60.7	38.7	19.97
Choteau	26.5	12.88	57.5	40.1	16.95
MT0260	29.2	12.86	60.7	40.0	14.51
MT0266	28.0	14.95	52.7	34.8	6.44
Steele ND	30.5	13.21	59.5	37.1	5.74
Freyr	28.8	13.07	59.7	36.9	2.62
McNeal	29.3	11.95	58.2	38.1	0.00
Dapps	31.7	14.19	58.7	34.0	-1.19
Scholar	34.7	12.58	59.5	36.8	-1.87
Knudson	27.3	12.95	59.2	35.7	-2.75
Glenn	31.2	13.11	61.7	34.4	-8.58
Granite	27.7	13.78	62.5	32.5	-11.24
Outlook	29.8	12.62	57.8	33.1	-18.04
Hanna	32.5	12.24	60.5	31.5	-26.61
MTHW0202	27.2	13.28	57.5	33.3	*
average	29.2	13.25	59.1	36.6	
probability	<0.001	<0.001	<0.001	<0.001	
CV (S/mean)	6.0	3.1	1.1	7.2	
CV (SE/mean)	3.5	1.8	0.6	4.2	
LSD 0.05	2.9	0.68	1.1	4.4	

¹ Wheat prices summarized by G. Carlson, NARC, Havre, MT, from 10-year (1995-2004) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee

*no price for white wheat

Table 30. Relative yields of spring wheat varieties as compared to McNeal when grown under irrigated conditions in Sheridan County in cooperation with CES.

Cultivar	1999	2000	2001	2002	2005	Ave	as % of McNeal
Reeder	63.6	54.0	17.7	54.3	41.2	46.2	121.0
Outlook	--	--	16.1	57.4	33.1	35.5	114.7
Alsen	--	49.5	17.5	41.3	38.7	36.8	107.4
MT0245	--	--	--	--	40.6	40.6	106.6
Norpro	--	--	--	--	40.4	40.4	106.0
MT0260	--	--	--	--	40.0	40.0	105.0
Choteau	--	--	15.7	40.0	40.1	31.9	103.1
McNeal	53.9	44.0	10.8	44.0	38.1	38.2	100.0
Steele ND	--	--	--	--	37.1	37.1	97.4
Freyr	--	--	--	--	36.9	36.9	96.9
Knudson	--	--	--	--	35.7	35.7	93.7
MT0266	--	--	--	--	34.8	34.8	91.3
Glenn	--	--	--	--	34.4	34.4	90.3
Dapps	--	--	--	--	34.0	34.0	89.2
Scholar	38.3	49.4	11.0	34.2	36.8	33.9	88.9
MTHW0202	--	--	--	--	33.3	33.3	87.4
Granite	--	--	--	--	32.5	32.5	85.3
Hanna	--	--	--	--	31.5	31.5	82.7

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety. Note: Severe scab infection in 2001

Table 31. Relative test weights of spring wheat varieties as compared to McNeal when grown under irrigated conditions in Sheridan County in cooperation with CES.

Cultivar	1999	2000	2001	2002	2005	Ave	as % of McNeal
Granite	--	--	--	--	62.5	62.5	107.4
Glenn	--	--	--	--	61.7	61.7	106.0
Alsen	--	62.8	59.3	59.7	60.7	60.6	104.7
MT0260	--	--	--	--	60.7	60.7	104.3
Hanna	--	--	--	--	60.5	60.5	104.0
Freyr	--	--	--	--	59.7	59.7	102.6
Reeder	60.0	61.8	55.6	60.3	59.3	59.4	102.6
Steele ND	--	--	--	--	59.5	59.5	102.2
Norpro	--	--	--	--	59.2	59.2	101.7
Knudson	--	--	--	--	59.2	59.2	101.7
Dapps	--	--	--	--	58.7	58.7	100.9
Scholar	56.8	62.5	56.1	56.7	59.5	58.3	100.7
MT0245	--	--	--	--	58.5	58.5	100.5
McNeal	58.0	60.7	55.0	57.7	58.2	57.9	100.0
Outlook	--	--	53.3	58.3	57.8	56.5	99.1
MTHW0202	--	--	--	--	57.5	57.5	98.8
Choteau	--	--	52.6	56.8	57.5	55.6	97.7
MT0266	--	--	--	--	52.7	52.7	90.5

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety.

Table 32. Relative protein contents of spring wheat varieties as compared to McNeal when grown under irrigated conditions in Sheridan County in cooperation with CES.

Cultivar	1999	2000	2001	2002	2005	Ave	as % of McNeal
MT0266	--	--	--	--	15.0	15.0	125.0
Dapps	--	--	--	--	14.2	14.2	118.3
MT0245	--	--	--	--	13.9	13.9	115.8
Granite	--	--	--	--	13.8	13.8	115.0
Alsen	--	14.4	13.9	15.5	14.0	14.5	111.8
MTHW0202	--	--	--	--	13.3	13.3	110.8
Reeder	16.1	14.2	14.2	14.4	13.7	14.5	110.3
Steele ND	--	--	--	--	13.2	13.2	110.0
Norpro	--	--	--	--	13.1	13.1	109.2
Freyr	--	--	--	--	13.1	13.1	109.2
Glenn	--	--	--	--	13.1	13.1	109.2
Knudson	--	--	--	--	13.0	13.0	108.3
MT0260	--	--	--	--	12.9	12.9	107.5
Scholar	14.6	12.8	14.4	14.5	12.6	13.8	104.7
Outlook	--	--	13.8	13.6	12.6	13.3	102.0
Choteau	--	--	13.4	13.7	12.9	13.3	102.0
Hanna	--	--	--	--	12.2	12.2	101.7
McNeal	14.1	12.5	14.2	13.0	12.0	13.2	100.0

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety.